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# FOOD AND AGRICULTURE

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Direction: S. L. LOUWES, Special Adviser to the Director-General of FAO





**Norris E. DODD, Director-General of FAO**

...The utmost in which I can succeed as Director-General is in being a faithful servant of FAO. The Director - General and the Secretariat are necessary instruments, but they are not FAO. The member nations are FAO. Only the member nations can make FAO's policies, and only action by the member nations can give effect to these policies.

The emphasis must be upon concrete, practical action by and within each nation. Nevertheless, in FAO the whole is greater than the sum of its parts. This Organization's work is a stronger force than any separate efforts could be, because of our mutual pledge to take action, nation by nation, and nation together with nation, in order to feed the world better and to improve the lot of the world's rural people.

I believe that the will to work together is strong throughout this Organization, and that it will carry us to reasonable, practical, concrete answers to the problems of hunger, of underdeveloped agriculture, and of underprivileged rural people.

*N. E. Dodd*



# COMPOSITION AND AMOUNT OF FOOD PRODUCED IN ICELAND

by **Julius SIGURJÖNSSON**

M. D., Professor of Hygiene, University of Iceland

In relation to the size of the population, Iceland is a large-scale, food producing country and by far the biggest part of the exports consists of foodstuffs, principally fish and fish products. This is of special importance at the present time when millions of people suffer from food shortage. It may therefore be of interest to make a comparison of food production and consumption in order to see how much is actually available to satisfy the needs of others.

The two principal activities in Iceland are farming and fisheries. Farming consists mainly in raising animals for production of milk and meat, but in addition potatoes, some edible roots and other vegetables are cultivated, whereas there is practically no cultivation of grain.

There is a surplus production of meat, and as regards dairy products and vegetables the country may be regarded as potentially self-supporting although some amount of butter is imported and potatoes except when the crop is abundant. As it is, however, the production and consumption of vegetables is considered too low.

The foodstuffs which have to be imported are cereals, sugar, vegetable oils and solid fats for margarine, and fruits. It has been estimated - based on dietary surveys - that the calorie value of these imported foodstuffs amounts to about 40-50% of the total energy requirements of the population. This is, however, much more than counterbalanced by the exports as seen from the following.

Table I gives a general view of the average annual food produce in Iceland during the period 1941-1945, based on detailed production estimates kindly submitted by the Director of the Agricultural Organization and the Director of Fisheries respectively. The calorie value is computed according to the Atwater system. The figures for farming products refer to the whole production comprising the amount

TABLE I. - *Average annual production of food-stuffs for the period 1941-1945.*

	1000 kg.	Million calories
Meat . . . . .	11,071	26,105
Offals (blood, liver, heart, etc.)		1,988
Lard . . . . .	495	4,184
Eggs . . . . .	600	850
Milk (buttermilk) . . . . .	34,621	21,811
Milk products (except butter).		5,753
Butter . . . . .	701	5,259
Vegetables (including potatoes)	9,964	5,695
Fresh-water fish . . . . .	536	441
<b>TOTAL FARMING PRODUCTS . .</b>		<b>72,086</b>
<b>Domestic Fish consumption .</b>		<b>5,000</b>
<b>Fish and fish products avail- able for export :</b>		
Flat-fish . . . . .	8,292	3,814
Cod and other fish . . . .	253,120	75,936
Herring . . . . .	7,776	11,508
Herring oil . . . . .	20,759	186,831
Cod-liver oil . . . . .	6,226	56,034
<b>TOTAL FISH AND FISH PRODUCTS</b>		<b>339,123</b>
<b>Total food production . . . . .</b>		<b>411,209</b>



consumed at home as well as that exported. As, however, the production estimates obtained from the Director of Fisheries only refer to the amounts available for export — there being no records on hand showing how much goes to the domestic market — this latter amount is estimated separately in terms of calories only (based on dietary surveys some years ago). In this case, contrary to the farming products, the domestic consumption is of an almost negligible amount as compared to the exports. The energy value of the total food produce according to the Table I, therefore, is 411, 209 million calories of which 72,086 million calories are derived from farming and 339,123 million calories from fishing. Allowing one million calories per caput annually \* this would cover the energy requirements of 411,209 persons *i. e.*, more than 3 times the population of Iceland (the average size of the population during this five year period was 125,220.) Hence, when deducting the calorie intake of the native population there remains a surplus of 286,000 million calories. As, however, up to 50% of the energy value of the nation's diet is imported in the form of cereals, sugar, etc., as mentioned above, the total food exports amount to more than this as seen from Table II which, as well as the cal-

\* This equals 2740 cal. per diem which again corresponds to 3400-3500 cal. per man value (Cathcart & Murray) based on the age distribution of the population of Iceland.

orie value, shows the composition of the exported foodstuffs as regards the energy supplying principles and in addition the approximate vitamin A and D content. Here the farming products are only of a minor importance as the bulk goes for domestic consumption.

Only two of the energy supplying principles are represented, *viz.*, protein and fat. The richness in these components, however, rather enhances the value of the foodstuffs in question, as lack of both protein and fat is more liable to occur and usually is more severely felt than that of carbohydrates in times of general foodshortage.

The standard commonly accepted for protein requirements is about 70 grams daily for adults which amounts to about 25 kilograms for the year. The protein content of the exported food therefore corresponds to the total protein requirements of 800,000 persons and consequently it would form a valuable supplement to the diet of millions otherwise liable to be short in protein. Much the same can be said about fat although no standard for fat requirements has been laid down.

*Vitamins A and D.* — Cod-liver oil is one of the most valuable sources of vitamins A and D. The potency of the Icelandic cod-liver oil is about 1500 U. S. P. units of vitamin A and 200 U. S. P. units of vitamin D.

TABLE II. — *Composition of foodstuffs available for export (Annual average for 1941-1945).*

	Million calories	Protein 1000 kg.]	Fat 1000 kg.	Vit. A Million USP units	Vit. D Million USP units.
Farming products (a) (chiefly meat) . . . . .	6,710	368	582	—	—
Fish (Cod, flat-fish etc.). . .	79,750	18,896	377	—	—
Herring (pickled) . . . . .	11,508	778	933	15,000	70,000
Herring oil (b) . . . . .	186,831	—	20,759	2,076,000	830,000
Cod liver oil . . . . .	56,034	—	6,226	9,339,000	1,245,000
TOTAL . . . . .	340,833	20,042	28,877	—	—

(a) Only a very rough estimate. Actually the exports were less than this but in addition some amount was consumed by the armed forces stationed in Iceland during the war.

(b) As a by-product considerable amounts of herring meal are produced, used as feedingstuff.



Considering 3000 I. U. of vitamin A – which corresponds to 3450 U. S. P. units – a fairly adequate daily dose, the annual requirements would be about a  $\frac{1}{4}$  million U. S. P. units.

The cod-liver oil alone would thus meet the demand, for this vitamin, of 7-8 millions. Similarly the 1,245,000 million U. S. P. units of vitamin D derived from cod-liver oil would be sufficient for 8-10 million children and adolescents (making 342-426 units per caput daily). Accordingly, the vitamin A and D content of cod-liver oil and herring oil could form a valuable supplement to the diets of tens of millions of children and adolescents otherwise liable to be undernourished in this respect.

In addition there is a considerable amount of vitamin A and especially D in herring oil. It is, however, not known to what extent these vitamins are retained after processing *e. g.*, when

the oil is solidified and used together with other fats in the production of margarine.

Compared to vitamins A and D the vitamin B content is not great, however it does a little more than balance the non-fat calories. The content of vitamin C on the other hand is quite negligible.

As to the common minerals the exported food is a fairly rich source of phosphorus but less so of iron and a rather poor source of calcium.

*Summary.* – The calorie value of the food produced in Iceland is more than 3 times higher than the energy requirements of the inhabitants. The exported food, which consists mainly of fish and fish products, is rich in protein and fat. As regards these components and especially the vitamins A and D it can serve as a valuable supplement to the diet of millions or even tens of millions.

*A complete List of the publications issued by the former International Institute of Agriculture and of the F. A. O. European Regional Office will be sent on request*



**Sir Herbert BROADLEY, Deputy-Director of FAO**

... I am very proud to have been given the opportunity of joining FAO, and of working with Mr. Norris Dodd, the new Director-General. The world has very many problems before it today and FAO has a great part to play in solving them. The task will not be easy: it will call for the wholehearted co-operation and effort of all of us.

... but if we work together as a team, forgetting all personal interests and thinking only of the service we can render we can look forward with every hope to making a real contribution to our age and generation.

*Herbert Broadley.*



# *Combating foot-and-mouth disease by modern scientific methods*

by Prof. Dr. **G. FLÜCKIGER**  
Chief of Federal Veterinary Office, Berne

## I. — APPEARANCE AND SOURCES OF INFECTION.

Statistics show that so far foot-and-mouth disease periodically spreads in a violent form, within a short time, over great areas. In former times its course was marked by great speed in Europe where, coming from East to West, it used to overrun the whole Continent in 2-4 years. After its extinction, regular periods followed when the continent was freed from this plague. Since measures are taken by veterinary police to fight this disease, it spreads more slowly and with less regularity in the courses of the epizootic.

In order to understand the periodical and violent outbreaks of foot-and-mouth disease, the sources of the infection must be considered. The malady is caused by a virus which can be filtered, as Löffler and Frosch proved at the end of last century. In order to produce new infection, the virus must be able to remain viable somewhere in a contagious condition. In former years the situation was not very clear, and it was supposed that the virus could live for a long time in externality, as this is known to happen with numerous bacteria. Now the most recent investigations have clearly shown that this is only true of a minor number of cases. If the virus is attached to animal tissues, scabs of blisters etc., it can, according to the investigations of Bedson, Maitland, Burbury and Waldmann, keep alive for months, while it will perish within

a short time if it remains in freedom. But its persistence in animal tissues would not suffice to explain the periodical cycles of epizootic because there is only a limited risk for susceptible animals getting into contact with such a persistent virus. On the other hand, researches have shown that the animal, *i. e.*, the animal body itself, which has once gone through this disease, can harbour a virus as a parasite, which retains its virulence and can leave its host at any moment. These observations have been made for several decades. Such hosts are called germ carriers, infection carriers, germ secretors, permanent secretors, etc. Although germ carriers have, after their survival in an epizootic of foot-and-mouth disease, been observed and described by practitioners long ago, differing opinions were still maintained until Waldmann and his school succeeded in 1930 in proving the existence of such germ carriers by experiment. The results of these investigations were published by Waldmann, Trautwein and Pyl in their Paper "The Persistence of the foot-and-mouth disease virus in the Bodies of Immune Animals and Its Secretion", which appeared in the "Zentralblatt für Bakteriologie", vol. 121, in 1931.

At the present day the existence of germ carriers will scarcely be disputed by any expert. In this respect I may refer to the discussions that took place in the International Office of Epizootics in Paris, at the meetings that were held between 1937 and 1939, in which not a



single delegate contested this point. If experimental investigations, made before or even since those described by Waldmann, led to other results, the reason must be found in the difficulty of ascertaining the presence of the virus. Perhaps new methods of concentration will facilitate a simplification of working methods in the future.

Modern science has, moreover, traced germ carriers in many, if not in the majority of infectious diseases, and especially in virus diseases, in which a number of them have remained clinically more or less latent. I may quote cattle-plague, swine-fever, infectious anaemia of horses and horse-distemper. Moreover I refer to the respective publications by Ch. Nicolle, Lebailly, Stillman, Kolle and others. Although the occurrence of germ carriers in foot-and-mouth disease is recognized, opinions still differ on the question of how long the virus can be secreted after the animal has recovered, and in what percentage virus carriers occur, as both problems are still awaiting their solution. There are already statistics on this subject. I may mention the "Observations On the Appearance of Post-infections with foot-and-mouth disease", communicated by the Swiss Federal Veterinary Office in the "Schweizer Archiv für Tierheilkunde", 1923, p. 401. According to this communication the animals that have recovered secrete the virus as long as 30 months after their first infection. Waldmann showed that 2.6 percent of the animals which were used for the preparation of hyperimmune serum in the Government Research Institutes on Riems Island, near Greifswald (Germany), and which had been thoroughly infected with foot-and-mouth disease, remained permanent secretors.

If virus carriers come into contact with susceptible animals, the latter can be infected. This explains, beyond doubt, a great number of the outbreaks of the epizootic and also part of the epizootic courses. Virus carriers have spread the disease into remote regions. The importation of such cattle for purposes of breeding or general utility to regions that are free of this disease, seriously endangers the health of their live-stock.

How can the periodical occurrence of foot-

and-mouth disease in many districts, and the great differences among the forms of the disease be accounted for?

First of all, it should be pointed out that the immunity created by this disease does not last long. Animals that have survived can be reinfected by the same type of virus a year or two later. Furthermore, the nature of this virus is not homogenous. Various types of it have been found so far, a fact to which I shall refer later on. If the type changes within a district, the immunized animals can get the disease again in a short time and in the same degree of intensity as the first time.

After the practical extinction of widely spread epizootics, there will always remain a considerable number of virus carriers. Now, if such animals come into contact with newborn or with other healthy animals, that were bought and imported from other regions, new centres of contagion are formed – as has happened for centuries past – and these centres can spread the disease widely.

Until quite recently it was often maintained that, on the outbreak of foot-and-mouth disease, the virus should be given an opportunity to wear itself out and to weaken itself by rapid multiple passages in a great number of animals. This opinion proved to be a fallacy. When no defensive measures are taken, the disease quickly spreads – at least in regions that were free of disease before – from one herd to another and from one species of cloven footed animals to another species. In consequence of its unrestrained spreading, great quantities of the infectious material are amassed and brought into the outer world by the excretions of the infected animals. The infectious capacity of the virus can increase thereby. The defensive or protective energies of numerous infected animals finally do not suffice to put up a successful resistance against the virus. The serious results are deaths, emergency slaughterings, great losses of milk and meat, in rearing, in working-capacity, etc. On the other hand it has been shown that an energetic application of appropriate protective and combative measures can greatly attenuate the development of the epizootic and reduce the losses considerably. For this reason it is desirable



to make the greatest possible efforts in fighting this disease in every single instance.

The efficiency of protective measures is clearly shown by statistics in that the spreading of the disease is not only more or less impeded, but also retarded by measures of veterinary police, while its occurrences appear to be less regular.

The brilliant success of the 'stamping-out' method practised in England, the United States and Switzerland goes to prove that the germ carriers are responsible for the recurrence of this disease and that its regular or continual appearance is due to insufficient defensive measures. These countries succeeded in keeping their territory practically free from foot-and-mouth disease during long periods, even when it spread widely in other regions. This method is successful mainly because recovered animals are kept in those countries; when the disease has entered the countries in the shape of intermediary germ carriers, its contagious effect is fought in the most energetic and thorough manner by a total slaughter of the infected animals.

Unfortunately the system of slaughtering has been applied only in a few states, as it has met with great difficulties in other countries for various reasons. In countries, whose frontiers open on large plains and have a brisk traffic in cattle, for instance, the total slaughter of infected animals had to be avoided, because they were very numerous and most of them had taken the disease within a short time, so that the ensuing economic loss would have been too great. The radical slaughter of all diseased animals in districts, where the cattle traffic cannot be thoroughly controlled and an early report of diseased cases is not ensured, would, therefore, scarcely be successful, because the virus from primary-centres spreads rapidly. For such reasons – as the past proves – one cannot hope for an international 'stamping-out' of the disease by the system of total slaughter only. The best results by the 'stamping-out' method have been achieved in countries, which are in an insular position – as, for instance, in England – and in those, whose frontier-line follows rivers or mountain ranges, such as Switzerland.

From these considerations it follows, that the extraordinary liability to infection makes it extremely difficult to fight this disease successfully by measures of the veterinary police, whose ordinances alone cannot be expected to achieve a lasting international effect. Circumstances have led a number of countries to introduce and to improve the process of immunization. There scarcely exists another disease on which so many considerable works have been published as on foot-and-mouth disease. The aim has always been to find a vaccine which – after being deprived of its infectiveness – still retains a sufficiently active, immunizing effect upon a susceptible animal. Every method, which was successfully applied to the prophylaxis and therapy of other infectious diseases, has been tried against foot-and-mouth disease. Simultaneous methods, guinea-pig-passages, culture-passages as well as the addition of chemical remedies, dyes etc. were employed to attenuate the virus until it was sufficiently weakened or diluted in order to be fit for use as a vaccine. These methods were unsuccessful.

The same is true of all attempts to check by chemicals the spreading of the virus in the body of the animal. Specific chemicals, such as the sulphonamides and penicillin against bacteria are not effective so far against foot-and-mouth disease, nor against any other pathogenic species of virus of human beings or animals.

## II. THE ELABORATION OF AN ACTIVE METHOD OF IMMUNIZATION.

The discovery of the plurality of the virus of foot-and-mouth disease, made by Vallée and his collaborators, marked a decisive progress in the investigation of immunity conditions. He was able to observe two types of immunization whose difference consisted in the fact, that when animals had gone through an infection of a certain type, they afterwards proved to be immune against this special type of foot-and-mouth disease, but not against other types of this plague. Vallée named his two types O and A. His findings were confirmed later on by Waldmann, who discovered a third type and

named them A (which is identical with Vallée's type O), B (identical with Vallée A), and C. The plurality is the key to the understanding of the epizootic action during great courses of an epidemic and is a decisive factor for immuno-therapeutics and for the preparation of vaccines against foot-and-mouth disease.

When, in the 1920's, Vallée and his collaborators began to use formalin for the attenuation of the infectious material, new possibilities for protective vaccination seemed to open up. There was a certain amount of success, but an attenuation sufficing to ensure the loss of infectiveness could not be achieved, so that there was no sufficient guarantee for its practical application, without losing thereby the potency of immunization.

In scientific research work absorption was widely used for experiments in the preparation of vaccines against various maladies. In general, Willstätter's aluminium hydroxyde was employed as an adsorbant (poliomyelitis, equine encephalomyelitis, fowl-pest).

S. Schmidt and his collaborators in Denmark have discovered that the virus of foot-and-mouth disease, when absorbed by aluminium hydroxide, can – just as Vallée's formalin vaccine – immunize the guinea-pig, so that a spontaneously non-susceptible general disease does not break out.

Basing themselves on the experiments of Vallée and Schmidt, Waldmann and his collaborators developed, on the island of Riems, near Greifswald, a vaccine, the virus of which was, after appropriate absorption, exposed to treatment with formalin and to heat until it lost its infectiveness, while its immunizing capacity was fully retained. The positive effect of this new vaccine has now been proved by an endless number of applications, generally confirmed, to last for the period of 8 months, giving cattle protection for this space of time.

At the Conference of the International Office of Epizootics in May 1939 the successful applications of the 'Adsorbat-Vaccine' of Riems in Germany and Switzerland were communicated and given expression by an unanimous resolution, declaring "that the conditions for the prevention of foot-and-mouth disease have been fundamentally changed by the applica-

tion of active immunization to this disease. One may now consider the protection of a country against this disease and even hope for its extinction after it has spread over a country". Great progress in combating foot-and-mouth disease was hereby achieved.

The original method of producing this vaccine has been published in detail in the paper "Die Entwicklung des Riemser Adsorbatimpfstoffes gegen Maul- und Klauenseuche und seine Herstellung", by Prof. Dr. Otto Waldmann, Dozent Dr. Gottfried Pyl, Dr. K. O. Hobohm and Dr. Hubert Möhlmann (*Zentralblatt für Bakteriologie*, 1941, vol. 148). One type of this vaccine contains 0.2 percent of attenuated virus. The development of immunity begins on the 5th day after vaccination and is usually fully achieved in a fortnight. The protection will last for eight months or longer. No essential changes in the technics of preparation have been made successfully so far. However, the adsorption power of aluminium hydroxide has been improved, whereby the concentration of the vaccine has been intensified.

The international Conference on standard methods of production of vaccine against foot-and-mouth disease, which took place on September 30-October 3, 1947 in Berne, was attended by delegates of 11 countries. The conclusions described the requirements to be met by the vaccine and concluded that the aluminium hydroxyde vaccine, prepared according to the principles of Vallée, Schmidt and Waldmann is, if correctly applied, effective and in every respect innocuous. Furthermore, it has never been observed that immunized animals acquired the disease in consequence of the vaccination nor that they secreted the virus in an infectious form.

The former experiments of Waldmann, tending towards the use of neuropathic virus of foot-and-mouth disease as an antigen for active immunization are of immunologic interest. The antigen seems to be successful when applied to pigs, but not yet in its application to cattle. These experiments should be continued.

So far, only bovine virus has stood the test for the practical preparation of vaccine, i. e.,



the virus that is obtained by the artificial infection of cattle. Vaccines, which are prepared from so-called tissue virus, *i. e.*, from viruses that are obtained from tissue cultures, have proved to be insufficiently effective. The future will show if improvements are possible.

### III. THE APPLICATION OF THE VACCINE.

As we have seen, the aluminium hydroxyde vaccine Vallée, Schmidt and Waldmann was declared by the International Office of Epizootics in Paris, as well as by the International Conference of September-October 1947, in Berne, to be effective and to satisfy the practical demands, while being innocuous at the same time. Since its introduction into practice in 1938, it has factually proved efficient everywhere with millions of animals, insofar as it was prepared and incorporated 'lege artis' and corresponded to the types of virus in question. The latter are decisive for the preparation of effective vaccines, that is to say that the types of the individual epizootic courses must be known exactly. Without this knowledge, the preparation of vaccine corresponding to the specific types of virus would be impossible, because an absolute success of vaccination in single countries and their frontier neighbourhood could scarcely be expected. If several types have appeared simultaneously in one part of the world, a bivalent or perhaps even trivalent vaccine must be prepared which is technically quite feasible nowadays. In its resolution, the Berne Conference has pointed out that a vaccine, intended for international use, must always be bivalent, *i. e.*, that it must be prepared either with the O and A types of Vallée or the A and B types of Waldmann. The type to be determined can be found by the method of complement deviation or by animal test. If a vaccine is available, that meets all requirements, more especially those concerning the types used for preparation, great results may be expected, if the other conditions are also fulfilled. The first of these conditions consists in an appropriate vaccination plan. Vaccinations made according to the wishes or demands of the individual owner of the animal or of commercial enterprises can never be suc-

cessful in times of epizootics, *i. e.*, they cannot help to stamp out the disease. The entire planning and execution of the vaccinations must be in the hands of the responsible organs of the authorities. These must always have the possibility of applying the vaccination and taking any measures of veterinary police under the control of the authorities. Thus, vaccination can only achieve its purpose as a compulsory measure. In order to ensure its application without friction, the veterinary surgeons and the owners of the animals must be widely informed by direct instruction and public notices.

An alert and precisely working epizootic service should in the future furnish international information, not merely concerning the spreading of the disease, but also with regard to the exact type occurring in the countries infected. This would not only put the non-infected countries in a position to take early measures of the veterinary police, but also to set up a broad protective screen at their frontiers, by vaccinating all of their spontaneously susceptible cloven-footed animals with the types whose importation is to be feared. Such protective action was, moreover, recommended by a resolution of the International Office of Epizootics in Paris in October 1946. If in spite of these defensive measures a great traffic of cattle should lead to outbreaks of the disease behind the protective screen, it can be 'stamped out' by immediate measures if needs be, by slaughterings, and a further spreading be prevented by extensive general vaccination. In this case also a perfect organization, under the leadership of experienced specialists, who take quick measures, is of the first importance.

In many countries the fullest utilization of vaccination in combating foot-and-mouth disease is still in its early beginnings. It presupposes a perfect administration and a capable, well-organized and generally recognized veterinary legislature. Moreover, the financial question must be solved by the government in such a manner, that private, economic interests cannot cause obstruction of such a program.

The advantages of vaccination will be evident primarily in those countries, where the 'stamping-out' method prevails. General vac-



cination of the exposed animals in the environs of the slaughtered stock will prevent the spreading of the disease. The good effect of the slaughtering method has been clearly improved upon by vaccination. Before such vaccination was practised, it was impossible to protect the exposed animals against the surrounding primary centre of contagion. The measures taken by the veterinary police often proved quite insufficient in themselves to prevent further contagion, so that a great number of animals had to be slaughtered in order to suppress the epizootic. Nowadays the situation is much more favourable. By applying vaccination at the same time as the slaughtering of the primarily infected stock the disease can be stamped out mostly within a short period. Such a system is also financially much cheaper than the 'stamping-out' method alone, as the quickly achieved immunization protects many animals that would otherwise have to be slaughtered too.

In those countries, where the isolation of the infected stock is the chief measure of defence, a careful introduction of vaccination into the official ordinances will be necessary, in order that vaccinating may be carried through without friction and that success may be ensured. At all events the results of the wide, well planned vaccinations that have been practised since 1938 seem to prove:

(1) that exposed regions can be protected against the disease by the formation of rings or barriers, and

(2) that epizootic outbreaks can be isolated by systematic vaccination of the exposed stock, *i. e.*, by a general vaccination, combined with measures of the veterinary police, and can in this manner be extinguished.

Here we must repeat over again that the quarantine measures of the veterinary police must be carried out most thoroughly. Furthermore, vaccination also can only be successful if reliable and early reports of outbreaks of the disease are ensured.

The reasons why such outbreaks cannot be efficiently suppressed by vaccination alone are:

(1) The virus of foot-and-mouth disease is extremely contagious, and

(2) after vaccination at least 12 days are needed for the development of immunity.

As has been shown, vaccination is most effective when combined with the slaughtering of animals suffering from foot-and-mouth disease. Since active immunization was started, the following system of combating this disease is practised in Switzerland:

(1) Immediate slaughtering of the infected animals.

(2) Vaccination of the exposed cattle stock, *i. e.*, of those animals who are suspected of having had any contact with the centre of infection (general vaccination).

(3) Immediate disinfection of the infected and exposed farms.

(4) Quarantine measures against the traffic of persons, animals and animal products.

By this system all outbreaks of the disease were limited to their primary origin. This method consists – popularly speaking – in encircling the enemy and making him innocuous. Besides this, the danger of importing the disease from foreign countries can be neutralized most effectually by setting up barriers along the frontiers, *i. e.*, by periodical prophylactic vaccination of the cattle stock in the zones that are threatened. The entire system would, without doubt hold good in every other country, while differing local conditions would naturally be taken into account. A description of all the modifications, that may have to be considered, would go beyond the limits of this paper.

Vaccination has already shown favourable results in international traffic of cattle. The animals in question can now be actively immunized at their place of origin, so that they do not risk being infected during their transport, not even if they have to be transported through countries in which cases of foot-and-mouth disease occur at the time. The International Office of Epizootics in Paris has also been concerned with this question and has, in a resolution of October 1946, stated that cattle coming from regions that are free of this disease, and which have had prophylactic vaccine treatment before, can be admitted to international traffic without further notice.

The development of foot-and-mouth disease vaccine is a great boon and constitutes a suc-

cess, such as is rarely achieved by veterinary medicine. It is now possible to immunize safely for months susceptible animals against every type of virus, without any harmful consequences whatever, while transmission of foot-and-mouth disease by such animals is precluded.

In countries with sufficient means of transport and an appropriate organization of its veterinary service, the application of vaccination offers no difficulties in its present form. But for other countries the vaccine still has two disadvantages. One of these consists in the relatively large doses, that are necessary for immunization — 30 cc. are needed per head — and on the other hand its great sensitiveness to temperature. In order to retain its efficiency, the vaccine must be kept at a temperature between +2 and +8 degrees C, which is not always easy, especially in tropical countries. Finally, this vaccine does not retain its efficiency for more than about 8 months. Yet it is to be hoped that science may succeed in achieving further improvements, as the resolutions of the Berné Conference of 1947 expressed.

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#### APPENDIX

RESOLUTIONS CONCERNING THE STANDARDIZATION OF METHODS FOR THE PREPARATION OF FOOT-AND-MOUTH DISEASE VACCINE, dated October 3, 1947. — Following a resolution of the International Office of Epizootics at its meeting in Paris, May, 1947, a conference under the auspices of the Office was held at Berne from September 30 to October 3, 1947 to consider uniform methods of preparation of foot-and-mouth disease vaccine. After considering reports and discussing the problem, the following resolutions were taken by the delegates:

1. They confirm that at the present time the vaccine prepared with aluminium hydroxide according to the method of Schmidt-Waldmann, if properly employed, is effective and absolutely safe. It is especially noted that it has never been observed that immunized animals have developed the disease following vaccination, nor do they eliminate virus.

2. In order to meet international requirements, the vaccine should have the following qualities:

- (a) it should have been submitted to a test, involving both subcutaneous and intralingual injections which should confirm the absence of detectable active virus;

- (b) it should be bivalent and contain the strains of type O and A Vallée (A and



B Waldmann) if the prevailing conditions do not warrant another composition.

The determination of the type should be established by approved biological methods. It is recommended that the value of the complement fixation test should be studied and if the results reported are sufficiently reliable it should be adopted. In this connection, the institutes at Amsterdam, Brescia and Santiago Chile, will furnish such aid as may be desired ;

(c) the general dose for large animals should contain a minimum of 0.1 gr. of each virus type, each being infective for cattle in a minimum dose of one in one million ;

(d) it should contain neutral or slightly alkaline aluminium hydroxide and have an adsorbing power sufficient to guarantee a margin of security which excludes the possibility of infection by vaccination ;

(e) it should contain an extract of virus prepared from infected material by methods which assure its maximum suspension ;

(f) it should be bacteriologically sterile ;

(g) it should be attenuated by the simultaneous action of a maximum of 0.05% of pure formaldehyde ( $\text{CH}_2\text{O}$ ) and moderate heat ;

(h) it should immunize large animals in a single dose of 30 cc. The uniformity of the dose is of practical importance to importing countries. The immunity is considered to be adequate when the test carried out with the strains from which the vaccine is prepared does not lead

to a generalized foot-and-mouth disease infection in a fixed proportion of the test animals (this proportion to be determined experimentally as the adequacy of the test will be governed by the method of infection and the susceptibility of the test animals).

3. The delegates express the wish that those countries producing vaccine which were not represented at the meeting in Berne, November 22, 1946, adhere to the arrangement concluded at that date and that those countries not present at this conference adopt the above resolutions.

4. The delegates are of the opinion that better arrangements should be made between the various countries with regard to the production of vaccine. This would overcome the difficulties existing at present whereby countries which are making vaccine are obliged either to maintain, at their own risk, large reserves of vaccine against the eventuality of a combined international campaign or on the contrary, for fear of wastage, to hold insufficient reserve stocks.

5. The delegates strongly recommend that further research studies be made on an international basis and that the directors of institutes preparing vaccine and those engaged in research meet at regular intervals under the auspices of the International Office of Epizootics.

# THE POTENTIAL USE OF THE NEW ORGANIC INSECTICIDES

**Stephen S. EASTER**

Entomologist, FAO

The recent discovery of the insecticidal properties of certain organic chemicals has given the entomologist vastly more effective materials for the control of insects. The long-lasting residual effect of these chemicals coupled with their extremely high contact toxicity has made possible a new phase in chemical control of insects. The control of insects has generally been considered to be practical only when the insects were present in annoying or destructive numbers. The control was therefore only corrective. The new organic insecticides have made preventive entomology a logical and practical method. In other words the control can be put into effect before the insect population begins to increase and the annoyance or destruction can be stopped completely.

The best known of the new organic insecticides is, of course, DDT. This chemical had been known for years but its insecticidal properties were not discovered until 1939 in Switzerland. A few years afterwards benzene hexachloride, hexachlorocyclohexane, was also found to have insecticidal properties in some respects exceeding those of DDT. This was discovered independently at about the same time in England and France. Since that time other very effective materials have been found, for example, chlordane, in the United States. All these new materials have certain advantages and disadvantages, some of which are

known to the specialist but commonly overlooked by others. DDT is extremely effective against the codling moth of apples but its use invariably results in a rapid increase in the population of red mites. A material toxic to red mites must be added into the spray schedule. DDT has long lasting residual properties but also kills insects slowly. Benzene hexachloride is rapid in its action giving a spectacular knockdown of insects but it has a characteristic odor which limits its use to the outdoors and to certain crops. Chlordane has also a rapid knockdown effect but is somewhat toxic to the operators. The toxicity to different insects varies with the material. It therefore becomes evident that the proper use of these wonderful materials can only be determined by careful research of trained men.

Discovery of new organic insecticides has been far more rapid than development of their uses with the necessary standardization of formulations for use by the ultimate consumer. The basic materials may exist in crystalline or liquid form. Various physical and economic reasons prevent application in the basic state. Application is therefore necessary in a diluted state. DDT has been widely used in five physically different preparations:

(1) Oil solutions for direct application to surfaces for residual treatment. The oil quickly evaporates leaving a deposit of DDT.



(2) Aerosols using heat or a highly volatile gas such as dichlorodifluoromethane as a propellant. This is intended for spacial treatment only and gives little residual effect.

(3) Dust dilutions with talc or similar materials for application in the dry form.

(4) Emulsions where the DDT is dissolved in a solvent which is in turn held in suspension in water.

(5) Wettable powders wherein the DDT is diluted in dust with a wetting agent added. Application is then made while the material is suspended in water. This is the form most suited for general agricultural use.

The use of DDT in oil solution has been well standardized over the world, at a concentration of 5%. This was due more to accident than to design as the cheap available oils generally reach saturation at about this concentration. No such standardization exists in the other preparations of these insecticides. Aerosols and emulsions have little application yet in the field of agriculture. The dusts and wettable powders, including all the organic insecticides, can be extremely useful for agriculture if proper use can be insured. In the United States where DDT is being widely used in agriculture the wettable powder is quite well standardized at 50%. In a number of other countries there appears to be some uniformity in preparation of wettable powders containing 10% DDT. Unfortunately great confusion exists in the use and formulation of these organic insecticides. A hurried survey of the situation in Italy gives some specific examples of the confusion.

Five per cent DDT in oil solution was being offered as a fly spray without proper direction that it was intended for residual action. When this solution is used as a spacial spray it falls far short of the spectacular knockdown found when certain other materials are used. In addition the residual effect is practically nil. Consequently the consumer is disappointed in the results all because of misdirection or lack of knowledge in its use. More important to the manufacturer, there is no resale of material.

The use of misleading labels and a general lack of indication of chemical content has

started great confusion in the agricultural preparations of DDT and benzene hexachloride. Workers were observed in field control of insects where the toxic material being used was unknown. The material was known only by one manufacturer's trade name. No indication of the toxic material nor of its concentration was shown on the container. Several preparations were purchased with no statement of concentration being shown on the package. The toxic chemical was indicated in very small print on two packages but the concentration was not shown. Another series emphasized the trade name of one producer. Three different products were observed under the same name. The chemicals and concentrations were shown on two packages but neither were indicated on the third container. Little wonder the farmer prefers to use lead arsenate which he knows by name.

The development of application equipment has not kept pace with the insecticides. The spraying equipment in Italy is designed for use of inexpensive fungicides. The nozzles and guns in use are not suitable for the use of high-priced organic insecticides. These organic insecticides are high priced in unit packages but when properly used at reduced concentrations the total cost per acre becomes less than with standard lead arsenate. At the same time the effectiveness is generally increased. In order to get the proper application suitable nozzles and dilutions must be used. The flow rates are too high and the spray patterns are far too coarse to give a desirable coverage of the wettable powders of DDT or benzene hexachloride. A minor amount of modification, particularly of the nozzles, would give a great improvement in the coverage of foliage and fruit. Modifications or possible radical changes in design of the sprayers will be needed before the optimum results are to be obtained.

It is quite obvious that the entomologist must work in close cooperation with chemists and mechanical engineers if the formulations of the new organic insecticides and equipment for their proper use are to be developed to permit the great potential insecticidal power in these materials.

*At the moment when I am leaving FAO to return to my post in the Netherlands administration as Director-General of Food Administration, I wish to thank all those with whom I had the pleasure to cooperate during the time I was working with FAO.*

*My work in FAO has largely been devoted to European affairs, the establishment of National Committees, the liquidation of the International Institute of Agriculture or better its incorporation, as far as possible, in the FAO framework, and the establishment primarily of a temporary Bureau of FAO in Rome and now lastly the preparation of a permanent Bureau.*

*More and more I have been convinced that a worldwide organization such as FAO can only really reach the hearts and minds of the people if it is brought closer to them by national and regional action. FAO has to provide information on facts to the governments to help them build their policy, to give them the opportunity to integrate their policies. But more than that, it has to create in the minds of the people the willingness to cooperate to better understanding and thereby lay the foundation for a progressive agriculture and better nutrition: the two best pillars for everlasting world peace, as our first Director-General, Sir John Boyd Orr, has so often emphasized.*

*I hope that it may be given to me from my own country to help in the realization of these ideals.*



**S. L. LOUWES, Special Adviser to the Director-General of FAO and Director of the European Regional Office**

*S. L. Louwes*



# ITEMS OF INFORMATION

The exclusive drawings which illustrate this Review are the work of the Italian sculptor Francesco COCCIA, Professor of the Faculty of Architecture at Rome University, and Ministerial Councillor of Fine Arts in the City of Rome. He won the competition for the monument to be built in honour of the martyrs of the Ardeatine Caves near the Appian Way.

## NUTRITION



### 1947-48 crop collection forecasts and slack food season in France

Interesting estimates for the collection of agricultural produce during the first half-year of 1948 are given in the January 1948 number of "Etudes et Conjonctures (Union française)" published by the "Institut national de la Statistique et des Etudes économiques pour la Métropole et la France d'Outre-Mer" \*. These forecasts have been estimated from the figures for the first five months of the season, due account being taken of the seasonal fluctuations. The food deficit in the coming period can thus be calculated, as far as is possible, quantitatively. The following figures and data on wheat, sugar, dairy products, meat, fish, eggs, vegetables and fruit, have been taken from the aforesaid publication :

#### Bread grains.

##### A. Cereal situation on 1 January 1948.

(5 first months of crop year)

##### (a) RESOURCES :

	thousand tons
Stock on 1 August 1947 (all cereals in terms of wheat) . . . . .	298

\* Paris, University Press of France.

thousand tons

##### Quantity collected :

Wheat. . . . .	1,238	in wheat equivalent. . . . .	1,238	298
Rye . . . . .	73		60	
Barley. . . . .	147		103	
Total in wheat .. . . .				1,401

##### Imports :

All cereals and flours in terms of wheat. . . . .	377	377
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TOTAL RESOURCES . . . . . 2,076

##### (b) UTILIZATION :

Bakery trade. . . . .	1,315
Industry. . . . .	59
Army . . . . .	22
Returned grain . . . . .	160
Brewer's barley : 23 ; in wheat equivalent . . . . .	16
Shrinkage . . . . .	33

TOTAL UTILIZATION . . . . . 1,605

##### Stock on 1 January 1948 :

2,076 — 1,605 . . . . . 471

##### B. Forecasts for end of crop year

The quantity of wheat still to be collected on 1 January 1948 can be roughly estimated from the figures for the previous years. Thus, at the end of the season, the harvest is expected to amount to about 1,600,000 tons of wheat, together with 200,000 tons of barley and 100,000 tons rye (expressed in wheat equivalent). After 1 January 1948, therefore, approximately 350,000 tons wheat and 150,000 tons coarse grains, in wheat equivalent, need to be collected. Thus the schedule

for the last 7 months of the crop year would appear as follows :

(a) REQUIREMENTS

According to present consumption . 2,100

(b) RESOURCES

*Quantity collected :*

1947 harvest :

wheat . . . . .	350
coarse grains (in terms of wheat)	150
1948 harvest (July 1948) . .	50
Loan North Africa . . . .	25
Withdrawals from stock, approximately . . . . .	225

TOTAL RESOURCES . . . . .	800
DEFICIT: 2,100 — 800 . . . . .	1,300

In addition to this deficit of 1,300,000 tons there is that of North Africa which, for the last 7 months of the crop year, would total about 300,000 tons. The total import requirements in bread grains, from 1 January to 31 July 1948 for France and North Africa, therefore, would amount to approximately 1,600,000 tons (in wheat equivalent).

**Sugar.**

It is expected that the white granulated sugar obtained in the 1947-8 season will be 200,000 tons short of requirements as the latter amount to 1,019,000 tons and resources only attain 815,000 tons, namely, a stock of 50,000 t., a domestic production of 600,000 t. and 165,000 t. from overseas territory. This deficit is partly due to unfavourable weather conditions which invalidated the initial forecasts for sugarbeet yields.

**Dairy products.**

While, for 1948, a fairly substantial shortage of fats — about 800,000 tons — is expected in the home country and the French Union, shortage which could be covered by foreign imports to an extent as yet impossible to calculate, dairy products, on the other hand, will show an increase if weather conditions continue to be favourable. This recovery in production will permit an additional 100 grams per month in the cheese ration (equivalent to about 10 calories per day) and the distribution of a milk ration to some categories entitled thereto and which at present only obtain milk at irregular intervals. For these consumers,  $\frac{1}{4}$  litre of milk per day would mean raising the energy value of the ration by over 150 calories.

**Meat.**

Meat supplies are calculated according to live-stock arrivals at the Villette Market in Paris. According to the curves for the years 1929 to 1938,

the annual fluctuations kept to  $\pm 10$  per cent. of the average. In recent years, the range of seasonal fluctuations — which mainly affected the consumers in the large centres — widened owing to the shortage of concentrates for winter fattening of cattle and hogs and to the lack of forage supplies which compelled many farmers to get rid of some of their stock. Consequently, there may possibly be a break in 1948 stock supplies, although the deliveries of large cattle might partly compensate the reduction in consignments of fattened beef.

**Fish.**

Since a considerable part of the fish catch (herrings, sardines, tunny) is reserved for the canning industry, the seasonal fluctuations in consumption should be less than those in production. No valid forecast for the first half-year of 1948 can be deduced from the fish production and delivery curves. At all events, any variation would only affect the general food standard to a very small extent.

**Eggs.**

The variation in egg consignments delivered in 1947 to the Paris Central Market tallied with the theoretical seasonal fluctuations. An increase in output and deliveries equivalent to 15 eggs per consumer per month, would augment the daily ration by 30 calories and about 3 grams of proteins.

**Vegetables and fruit.**

The seasonal fluctuations in vegetable and fruit deliveries are very marked as supplies start to increase in March and reach the peak in June-July. Weather conditions may cause some variation. The 1948 season is expected to be earlier than usual and consequently would lead to an increase in fruit and vegetable consumption amounting to about 150 gm. per consumer per day, that is, approximately 50 to 75 calories.

**Potatoes.**

Since the supplies of new potatoes from Brittany and the South only start to arrive in any appreciable quantity in June, there will be a gap in May which consignments from North Africa will not suffice to cover. Owing to the increased requirements for both human and animal consumption — reduced bread ration and shortage of feeds for fattening hogs — it is unlikely that supplies up to 30 April will be adequate. A reduction in supplies, equivalent to 100 gm. of potatoes per consumer per day, would curtail the energy value of the general diet by approximately 70 calories.

**Other products.**

Imported Italian pastes and dried vegetables would contribute towards the diet of consumers in the large towns during the slack period, 500 gm.



Italian paste or 500 gm. dried vegetables, distributed in the course of a month, would be equivalent to about 50 calories per day.

### Conclusion.

The supply of two essential products — meat and potatoes — to the large centres appears to be lowest in April and May. Increased egg deliveries would only partly compensate the shortage of meat, while vegetables and fruit would at the most cover the energy deficiency due to short potato rations. Bread and fat rations, the eventual distribution of edible pastes and dried vegetables are unknown factors which, at that time, may materially affect the situation.

## Rationing in Switzerland

*(Communication from the Swiss FAO National Committee)*

With the abolition of coupons for bread, baker's products and edible pastes, rationing in Switzerland as from 20 March 1948 has been further reduced. Flour, however, can still only be obtained with ration vouchers. The consumption of cereal foods continues to be restricted but, with the new system, coupons are no longer required. With the assistance of the Federal Wheat Board, which sees to the centralizing of imports, millers and bakers divide the cereals within the authorized limits. Thus, control costs are lessened without Switzerland failing in her commitments with IEFC.

## Western zones of Germany

In the western occupied zones of Germany, during the post-war period, production was only enough to assure the population 900 to 1,000 calories a day. The present ration (excluding supplements for manual labourers, invalids, nursing mothers and displaced persons in camps, etc.) amounts to approximately 1,500 calories per day. In order to ensure this ration, Germany has been obliged to import to such an extent that today it ranks second after the United Kingdom among importing countries on the world market. The Food and Agriculture Division of the Control Commission reported in early January 1948 that, in 1947, the Bi-zone (territory occupied by the United Kingdom and the United States) had imported 3.94 million tons of cereals and flour, equivalent in terms of flour, to 3.61 million tons. This meant 2.5 million tons cereals more than in 1946 and the anticipated monthly import of 300,000 tons was exceeded. In the western zones 1.95 million tons of bread cereals were produced. As regards other foodstuffs (pulses, sugar, rye meal, oils and fats, fish, potatoes and seeds), 390,000 tons were imported in 1947. Owing to the very low national

production twice this quantity would have to be imported to provide the normal consumer with approximately 2,800 calories per day, the amount considered necessary to maintain the work capacity of the human organism according to the calculations of the League of Nations; this amount is also in conformity with the standard of living deemed desirable by the Potsdam agreements.

In view of the food shortage throughout the world, there is no question of importing such large quantities. It is also unlikely that such high supplements as those given in 1947 can be supplied in the future; consequently, the chief aim in agriculture in Germany should be a continual increase in national production.

(Werner Zimmermann, Braunschweig).

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According to the 'Public Ledger' of April 1st, the **Polish Government** officially announced on March 31st the end of **rationing** of some consumer goods, including sugar, groats, potatoes and hosiery, as from April 1st.

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We learn from official sources that home-produced butter, milk and milk-based dairy produce have been **unrationed in Belgium** since May 1st, and that the only other foods still on ration are imported butter, bread, margarine, cooking fat, sugar and salad oil.

\*\*

Mr. Strachey, British Minister of Food announced that competitors in the **Olympic Games** who are accommodated in housing centres will be allowed **rations** on the category 'A' Industrial scale, with additional allowances of liquid milk and sweets. Olympic Committees who wish to supplement these allowances will be able to import consignments of food free of duty.

(Ministry of Food Bulletin No. 443, April 9, 1948).

## AGRICULTURE



**The world food and agriculture situation and prospects**

*(Extract from a document prepared by FAO for the Second Session of the Council of FAO in April 1948; the information in this document is based on data available as on 5 March 1948).*

The third postwar year is one of continued food shortages. In general, prewar levels of consumption have not yet been regained in the war-devastated countries, and there are large areas of the world in which even the inadequate consumption levels of last year are not being maintained. In the deficit areas of the Far East, supplies are near the precarious levels of last year, and *per caput* consumption is lower today than it was a year ago in several countries of Europe and the Middle East. Western Europe, in particular, has suffered a serious setback in production as a result of extremely adverse weather during the 1946/47 growing season, and imports have failed to compensate fully for production losses.

The condition of winter grain crops in Europe, North America, and the Far East is generally good, and substantial increases in seeded areas within these regions are reported. This development, together with the excellent grain harvests in Latin America and Oceania, has given rise to considerable optimism for the future. But a word of caution appears in order since the Northern Hemisphere harvests are still ahead. Furthermore, carryover grain stocks at the end of the current crop year will be very low, and livestock numbers will be smaller than a year ago. In countries where slaughtering has been heavy, there will probably be a strong desire to rebuild flocks and herds as soon as feed supplies permit. This process will delay increased food supplies. The world still needs more than one good crop year even to restore prewar levels of food supplies in all areas. Progress is being made in restoring and improving the physical productive plant, but price and general economic factors call for an increasing measure of attention.

The 1947 bread-grain harvest for Europe as a whole (excluding the U. S. S. R.) was about 8 million tons lighter than the 1946 harvest. In Western Europe the potato, sugar-beet, vegetable, and feed crops also fell off sharply, although the total decline in these crops was relatively less than that in bread grains. The severe feed shortage that developed in the late summer and early fall as a result of the drought reduced milk production and forced unusually heavy animal slaughter during that period.

In contrast to the rest of Europe, the Danubian countries and the western part of the Soviet Union had generally favourable weather, following the severe drought of 1946 in these areas. Larger crops made possible increased consumption levels and some exports, mainly of coarse grains.

In the Far East as a whole, production of rice, bread cereals, and most other crops was slightly greater in 1947/48 than in 1946/47. But output is still not back to the prewar level; and with a population substantially larger than before the war, dangerously inadequate consumption levels still prevail. India, the largest deficit area, reports

both rice and wheat crops below those of last year.

Unfavourable weather in North America, the greatest food-exporting region, cut production of all grains in Canada and of maize, the largest grain crop, in the United States. This development reduced exports of both grain and livestock products from these countries.

In the Southern Hemisphere, weather conditions in 1947/48 have been generally good, and heavy exports from these regions during the first half of 1948 will be of great significance to the deficit countries of Europe and the Far East. Australia, Argentina, and the Union of South Africa have just harvested excellent grain crops. Pasture conditions have favoured a high level of livestock production in these countries and in New Zealand. Exports of meat and dairy products from Southern Hemisphere countries are not expected to offset the decline in North American exports.

Cuba is harvesting a record sugar-cane crop, and the sugar supply situation is expected to be somewhat more favourable than last year.

World exportable supplies of grains other than rice in 1947/48 are estimated at about 33.5 million metric tons, an increase of 4.5 million tons over 1946/47 shipments. As the needs of the deficit countries have increased by at least 8 million tons, however, the grain shortage is acute. World exportable supplies of rice are slightly larger than the amounts shipped in 1946/47, but the increase in needs of the deficit areas at least equals this gain.

Present indications are that world exportable supplies of fats and oils in 1948 may slightly exceed the 1947 level, the anticipated increase in output of several types of vegetable oils more than compensating for the decline in animal fat production in the exporting countries of the Northern Hemisphere.

An inflationary trend in food prices, strongly in evidence in many parts of the world during 1947/48, has greatly complicated the problems of both international and national food distribution. In particular, it has added to the balance-of-payment difficulties of countries dependent on food imports.

Fortunately, weather conditions are rarely, if ever, unfavourable to agricultural production in all parts of the world at the same time. Thus in 1947/1948, though production was reduced by bad weather in most of Europe, North America, and parts of the Far East, growing conditions in south-eastern Europe, the Soviet Union, and some Far Eastern areas were better than in the previous year; and in the temperate zone countries of the Southern Hemisphere the weather favoured high production levels in such widely separated regions as Oceania, Argentina, and the Union of South Africa.

The impact of year-to-year fluctuations in indigenous production on the food supplies and consumption levels of a given nation or region, therefore, is considerably softened by world trade in



foodstuffs. As a rule, however, supplies and consumption levels of a nation or region are affected more by annual variations in indigenous food output than by variations in its trade. Exceptions are such nations as the United Kingdom, which imports a large proportion of its total food supplies.

Detailed estimates of actual food supplies in Europe indicate that the average for the year as a whole is significantly lower than during 1946/47 in eight countries —the United Kingdom, France, Denmark, Sweden, Spain, Portugal, Czechoslovakia, and Bulgaria. Levels remain about the same as in 1946/47 in Ireland, Belgium, the Netherlands, Finland, Italy, and Greece. The other countries show varying degrees of improvement. Smaller supplies of grain and potatoes account for most of the declines in the caloric value of the total food supplies of the first two groups of countries. The deterioration would have been even more severe except that somewhat more economic use is being made of potentially available food supplies in a number of countries. This includes higher extraction rates and reduced non-food uses of potential food supplies.

The average level of food supplies for the entire population of a country is easily misinterpreted. In many countries the farm population has a reasonably adequate level of consumption at all times, and the remainder of the population has correspondingly less. This is generally true of Europe, though not of the Far East, where the population, though predominantly agricultural, does not produce enough food in many areas to meet its own needs. In most countries imported foods are consumed mainly by the non-farming population. Hence, it is the urban population that is mainly affected by shortages.

A comparison of official food rations at the end of 1947 with those of a year earlier indicates that in France, the Netherlands, Denmark, Sweden, Czechoslovakia, Spain, and Bulgaria bread rations were lower. In several other countries they had been maintained only by the admixture of larger proportions of coarse grains. Rations of fats were approximately the same as in 1946 in most countries except in southern Europe, where more abundant supplies of olive oil had permitted increases. France, Belgium, and Switzerland derationed meat in the fall of 1947 when livestock slaughter was unseasonably heavy. Meat rations were increased in the Netherlands for the same reason, but in the United Kingdom they have been reduced. Milk rations were reduced in a number of countries during the autumn. Potatoes were rationed in the United Kingdom for the first time, and were rationed in Czechoslovakia. Sugar rations were about the same as in 1946 in most countries.

When food supplies are short, the total supply is seldom evenly distributed over the year. Few nations restrict consumption immediately after the

harvest to a rate that can be continued over the whole year. Then, too, there is always an element of uncertainty as to future supplies, and under present sharing arrangements there is the possibility of getting larger imports to meet acute needs. While the planning for the year as a whole may have been better this year than in previous years, further ration reductions from the current inadequate levels are likely to be necessary in many countries during the next few months.

## Agricultural mechanization in Europe : present position

1. *Introduction.* — The structure of European agriculture to-day is threatened to such an extent that the danger point will be reached unless all efforts can be combined to set up new systems on the remnants of the past. Attempts at collaboration are already becoming evident everywhere in European agriculture and are following the general tendency towards common reconstruction.

In all European reconstruction programs, agricultural machinery is ranked among priority goods, and the tractor is considered as the most suitable means of speeding up production.

2. *Use of motive power.* — Tractors are now used much more extensively in Europe than previously, numbering almost half a million, compared with about 270,000 prior to the war. This increase, however, is not sufficient to cover the losses of draught animals suffered during the same period; these losses are calculated at 5 million horses and mules, which are now estimated at approximately 13 million.

The need for tractors is urgent, particularly in countries where the shortage of farm workers is becoming ever more acute. The industrial recovery attracts manpower away from the country and the workers who remain show a rising preference for motorized work. Once the workers have become familiar with motors, they have no wish to return to the more laborious work with draught animals. Comparison shows that the United Kingdom and France to-day possess as many tractors as the rest of Europe together (200,000 in UK and about 50,000 in France).

3. *Machine production.* — As a result of reconstruction projects, tractors and other farm machines are now being manufactured on a large scale in Europe. In some countries war plants have been partly converted for the manufacture of farm machinery. In theory, the output capacity could cover the demand in a few years. Unfortunately, effective production is restricted owing to the shortage of raw material and to labour difficulties. The actual output, therefore,

is still far from meeting the requirements of the different countries. In the case of equipment such as powerful crawler tractors, heavy ploughing implements, some kinds of harvesters, European output is still very short while, (in other cases) it already exceeds the domestic requirements of, for example, wheel tractors with mounted equipment. In the United Kingdom, yearly production now amounts to about 90,000 tractors, of which 75 % are available for export.

In Europe, the trend in machinery production is towards mechanization of small and medium family farms. The 4 wheel all-purpose tractor was devised to replace the horse in all farm work and for other uses. The necessity of tilling small plots led to the manufacture of the tractor with mounted implements and hydraulic control of the working parts.

The tractor power required for the mechanization of the small holding largely depends on the effort needed in tilling the soil. Tractors built for small farms may be suitable in the central and northern areas of Europe, while, in the regions bordering the Mediterranean, where the soil is extremely hard to till owing to its compact nature and climatic conditions, small tractors would not provide a solution to the problem. Deeper ploughings necessitate powerful crawler tractors which are generally employed on a cooperative basis.

The manufacturing cost of European machines is usually excessive, for the following reasons: (1) manufacturers are frequently obliged to procure on the 'grey' market the raw materials they require at a very high price; (2) output is often checked through labour troubles; (3) some machines (which would be) needed in large numbers, are manufactured in too many types which prevents standardization for mass production.

The problems pertaining to raw material and manpower which are the chief causes of the high price of machines, can only be solved with measures of general range and social policy. The question of the excessive types of the one machine does not generally depend solely on the manufacturers, but also on the pressure exerted on them by some interested groups of farmers, who insist on having special models. This exaggerated demand for continually more specialized machines for similar work carried out under frequently similar conditions leads to instability. In some cases, it is a moot question whether or not industry does not detract from efficiency; this method produces too many different models. In Europe an excessive range of types of machines hampers mass production and ends by checking the extension of mechanization and by making spare parts ever more difficult and complicated to obtain.

In the present straits, the supplying of spare parts and keeping of machines in repair have become very difficult. Machines now are given

much rougher treatment than in normal times. Improved, but often complicated machines, cannot stand up for long under such conditions. At the moment, the general need in European farming is for simple, strongly built machines, made up of relatively few parts. Their engines should be able to run with any ordinary fuel, as high grade fuel cannot always be obtained. The semi-Diesel is the best type of engine under these conditions. This is the reason why it is so frequently in demand for tractors despite it being awkward. While formerly, it was manufactured mainly in Germany, some firms in Italy, Hungary and other countries now supply them.

At present the *spare parts problem* constitutes, perhaps, the greatest difficulty in the agricultural mechanization of Europe. The chief obstacle is that, before and during the war, Germany was the principal supplier of farm machines in Europe. These machines are still available, but are often unusable since they are short of one or more parts, and even if these parts could be obtained, administrative difficulties would prevent free exchange. Apart from this, the problem of spare part encounters many other more important difficulties due to the excessive number of machine models. To solve the question of spare parts service, production in large quantities should be adopted for certain types of machines. New machines should be constructed with as few parts as possible. If practical, malleable iron or alloys should be substituted for cast iron parts to facilitate repairs of spare parts.

The *reduction in number of models* and the tendency to guarantee the production of specific types, is the procedure called 'typification'. This was systematically followed in some countries during the last war and very remarkable results were obtained as regards increased output, economy in material and diminution in production costs.

The *question of standardization* also is closely linked with the problem of supplying spare parts, since the standardization of the parts subjected to the most wear and tear, would greatly simplify replacement. There are many other aspects of standardization in Europe: for instance, that of adaptation, enabling machines or implements to be mounted on any tractor. Standardization of adaptation is becoming a more vital question for mechanized small holdings in Europe, because with the increase in number of tractors with mounted implements, the matter would no longer be serviceable when the original tractor had to be changed for a different type with its own mounting devices. In Europe it is imperative that this question be studied, although definite standardization cannot be attained until a greater stability has been acquired in the development of tractors with mounted implements.



4. *Export possibilities.* Some European countries have machines available for export, a fact which is not sufficiently known. Mention has already been made of the United Kingdom.

Italy, for example, has crawler tractors and semi-Diesel tractors for export. Hungary is obliged to export a considerable part of its machinery output (semi-Diesel tractors, threshers, etc.) because its plants are equipped for the construction of machines suitable for large and medium estates, which, following the agrarian reform, no longer exist in that country. Thus, Hungary, at present can produce machines, but not those needed for the prevalent very small farms. This equipment is of a more elementary type, which has to be procured from abroad. Part of the tractor and farm machinery output in Czechoslovakia is also intended for export.

It would be of great assistance in establishing a better exchange level if fuller details could be obtained on European machinery manufacturers, their output and export possibilities.

5. *Machinery imports.* Until the actual production of machines has attained its full output capacity, appreciable quantities of machines will have to be imported. Even after recovery, trade exchange agreements for machinery will continue, either for spare parts of the machine formerly imported, or for special machines which are only constructed in certain countries, or other machines for non-producing countries.

The machinery trade, like any other trade in Europe to-day, encounters difficulties which are too well known to need discussion in this note. The greatest part of the imported machines are obtained from the United States; a small percentage is sent from Canada. Imports from the United States are mostly heavy crawler and wheel tractors, and harvesting machines.

6. *Allocation and distribution of machines.* Present recovery programs depend very considerably on the financial aid of the United States to speed up the restoration of farm machinery supplies in Europe. A certain control of the money granted is exercised, which may entail supervision in distribution.

Normally the machines are distributed through the intermediary of dealers, the agents of manufacturing firms, or cooperatives for the purchase or sale of machines. When, for one reason or another - a condition now existing in many European countries - it is deemed advisable to deviate from the normal channels of distribution, ever increasing and frequently insuperable difficulties are encountered. As just stated, the recovery programs provide for the speeding up of mechanization through foreign aid in purchase of machines. The suggested mode of control contemplates a regulated distribution of machines and thus risks

diminishing the efficiency of the aid given. Red tape slows down the distribution of supplies and renders it extremely complicated through too many details which have to be furnished on application. Since, however, the rapidity with which this aid is put into effect is of decisive importance for its successful outcome, it may be asked whether a simpler system, limited to the supervision of the money expended, leaving greater freedom for the normal distribution channels, would not better meet the requirements of the moment, even at the risk of some inefficiency. With the allocation system, machines sometimes have been received when the season for which they were required was over (this was also the case for consignments of fertilizers and seed). Often transport charges amount to 20 or even 30 % of the original price of the machine instead of the anticipated 10 %. What is to be done to prevent such a vital and valuable aid from arriving too late or from not being fully effective?

7. *Conclusion.* Most problems connected with agricultural mechanization cannot be solved rapidly because machinery must be adapted to the conditions under which it is used. There is considerable interest in Europe in developing some type of organization or organizations which might prove helpful to the development of mechanization. Some have suggested using existing National Technical Centers of Agricultural Machinery, setting up new Centers for countries not now having them, and of establishing a European Technical Center for Agricultural Machinery.

The organization, functions, and methods of financing such Centers have for some countries not yet been clearly defined. Some general suggestions have been made that they could make investigations and studies with the aim of solving common problems, obtain closer collaboration between all groups concerned with mechanization, assemble useful information on types of machines adapted to varying agricultural conditions, collect data on production, and exports, and obtain information on export possibilities as well as domestic requirements within Europe. The proposed types of investigations and studies as well as the ways in which collaboration could be helpfully undertaken have still more clearly to be established.

## New subsoil plough with manure spreader

Having found that subsoil ploughing benefited plants "by improving the physicommechanical, water and biological conditions of the soil environment", G. Stefanelli, Engineer, Director of the Agricultural Mechanics, University of Bologna, describes \* his

\* *Macchine e motori agricoli*, Bologna, Vith Year, No. 3; March 1948.

idea of applying certain fertilizers to the substrata simultaneously with subsoil ploughing. He has made a rough construction of a dual-purpose machine fitted with a subsoil down-pipe device which would permit (a) tilling the subsoil, (b) applying fertilizer at the same time to the layer broken up by the subsoiler, that is, below the properly so called arable layer, (c) easy attaching and detaching of the combined subsoil-manure spreader device with the ordinary plough, in order to avoid requiring substantial alterations in the structure of the plough, (d) a power requirement without excessive increase, so as not to affect the stability of the plough and manoeuvring at the end of the furrow.

Experiments on this new machine are being continued. As regards the quantity of fertilizer to be applied to the subsoil, the author, having conferred with the agricultural expert Mancini, states that it should be about two-thirds of the amount normally employed, with the remaining third to be given as a top dressing. Thus, with the subsoiler, 5 to 6 quintals of well mixed phosphate and potash per ha. would be the average dose for a furrow 100 metres long and about 45 cm. wide, corresponding to 22-27 gms. of fertilizer per linear metre of furrow. As yet it is almost impossible to operate this apparatus with fertilizer, but perhaps, with suitable modifications, it may become a feasible proposition in the future.

## Western zone of Germany

Owing to the fragmentary and inadequate imports of farm machinery and production material needed for agricultural recovery, three years after the war, there is still little sign of improvement. To date, a slack economy has given but slight impetus to agriculture, and two abnormally unfavourable years lowered the productive capacity still further in most regions. While, in 1946, the incessant rain at harvesting time damaged a considerable part of the crops, during the 1947 summer and autumn, an exceptional drought caused losses to the crops in Germany and in other parts of Europe; these losses were quite unexpected as the weather conditions were favourable in spring and the beginning of summer.

Not only was the cereal harvest damaged but also, unfortunately, the hoed crops. In nearly all German regions, the 1947 drought diminished the cereal harvest by about 15 %, and the yields in hoed crops (potatoes, mangels and sugarbeets) were about 20 % below the expected quantity. The potatoes were either small or diseased. The mangel crop was a complete failure. The sugarbeets had a higher sugar content, but were much below average in size.

The scorching of the meadows and pastures caused an appreciable reduction in milk yield and obliged

the farmers to slaughter many more cattle than had been anticipated according to forage production. The fruit crop was unusually low. A large proportion of the autumn and winter fruits were infested by plant pests. Under these critical conditions, the vegetable crop also suffered from the drought. The yields of the summer and the greater part of the winter vegetables frequently amounted to only a very small percentage of the normal harvest. These low yields in some cases entailed a drop of 80 % in the vegetable supplies to the population. The fruit and vegetable canneries were so short of the fresh produce, that not even enough tinned goods could be prepared for the hospitals. (Werner Zimmermann, Braunschweig).

## News from Czechoslovakia

*Based on Official Sources.*

On 21 March, 1948, three important bills affecting agriculture were passed by Parliament. The first constitutes an amendment to the Law on Revision of the Land Reform carried out after the First World War, and, it is estimated, will bring some 100,000 more acres of land for distribution among the farmers.

The other bill provides for the new Land Reform; estates of over 50 hectares (about 125 acres) will be purchased by the State to be allotted to the farmers. Estates of smaller acreage will also be purchased by the State if owned by people who do not work on them and who let them out to farmers on rent. It is estimated that through this legislation all 13,000 villages in Czechoslovakia will be affected, as approximately half of them contain an estate of more than 125 acres, and about 15 % of the land in every village is leased to farmers. Mr. Gottwald, Prime Minister, said in an interview that this law, together with the bill on Land Consolidation, would render possible the planned mechanization of agriculture and that such legislation, together with a wide network of tractor stations, cooperative machinery stations and complete electrification of the countryside, as foreseen in the Five Year Plan, would contribute by about 20 % towards increasing the agricultural production.

The third bill, on Land Consolidation, is estimated to reduce by 90 % the present system of scattered strip-holdings which now amount to about 33 million lots of cultivable land of an average area of little more than half an acre each.

In addition to these laws, the recently approved bill on Unified Agricultural Taxation will mean the fusion of five different taxes; it will reduce the farmers' taxation onus by about 1,000 million Czechoslovak crowns (20 million U.S. dollars) and exempt small-holdings from taxation altogether.



○ Spring sowing in Czechoslovakia has been completed successfully. The plan for rye has been realized by 104 %, for wheat by 101.1 %, for barley by 73.5 %, and for oats by 53.4 %. The area for oil-seeds, however, falls seriously short of the target, being only 26.5 % of that planned. An improvement, it is stated, is likely to be seen in the barley and oats situation, as soon as the returns of the mountainous border regions are known.

○ A 'Forestry Week, was organized in Czechoslovakia from 11 to 17 April, 1948. Some 18 million new conifers and over 6 million broad-leaved trees were planted by volunteer squads, made up largely of school children.

○ Mrs. Jankovcova, Minister of Food, declared on 22 May, 1948 that the present food rations would not be lowered and that the reason for the present fat difficulties lay in the fact that 30 % of the country's cattle had had to be slaughtered last year because of the prolonged droughts.

○ Owing to improved deliveries, it will be possible in June to give adult consumers a daily milk ration of 1/16 litre, and this will probably be raised to 1/8 litre if the deliveries continue to be favourable

## **Program for agriculture and allied industries under the Russian five year plan**

Renewed activity in the food industry, on a higher level than before the war, together with an improvement in quality is an aim of the Soviet five-year plan for 1946-50.

An increase of 150 % from fisheries and frozen fish production is expected in 1948 and, by 1950, this increase should be over 180 %. Fisheries in the Northern Basin of the Far East will be greatly expanded and fisheries to the South of the Sakhaline peninsula will be reorganized.

The production of tinned foods such as meat, milk, fish, vegetables and fruit, will be considerably increased. 92 sugar refineries, 144 distilleries, 24 preserve factories and 68 wholesale bakeries, will be reconditioned and brought into full production. 10 new sugar refineries will be built as well as 7 distilleries, 9 preserve factories and 39 bakeries.

The plan also calls for the reconditioning of 41 tinned meat factories, 20 cold storage plants, 22 dairy product and 8 condensed milk plants and the build-

ing of 36 new factories for tinned meat, 38 cold storage plants, 48 establishments for the manufacture of condensed milk and 1,200 for cheese and butter production. In these factories the assembly line system will be used and packing will be done automatically.

Salt mine production will be brought up to 1,400,000 metric tons per annum. A new salt mine in the Ukraine will be brought into production while the yield of the salt mines in the Urals, in Kazakhstan and Altaï and in the Irkutsk will be intensified.

An increase of at least 25 % over 1940 agricultural production is estimated, which will bring production up to 127 million metric tons of wheat, if the average yield is taken to be 1,200 kg. per hectare.

A harvest of 26 million metric tons of sugarbeets (1,900 kg. per ha.), 3,100,000 m. t. of raw cotton (400 kg. per ha.) and 3,700,000 m. t. of sunflower seeds (1000 kg. per ha.) is aimed at for industrial uses. The production of hemp, oil-bearing seeds, tobacco and rubber will be increased.

Livestock increases will be: horses - 46 %, cattle - 39 %, goats - 75 %, hogs - 200 %. Poultry breeding will be greatly increased thanks to the use of incubators.

Special measures will be taken to increase the cultivation of green vegetables, potatoes and livestock outside Moscow, Leningrad, Baku, Kharkov and Kiev as well as near the industrial centres in the Urals, Siberia and in the Far East. Workers' allotments will be encouraged.

In order that production may reach the level planned, 5,100,000 m. t. of nitrogenous fertilizer, phosphate and potassium and 400,000 m. t. of phosphate of lime will be required from 1946 to 1950.

A reforestation program has also been arranged as well as a plan for the irrigation of over 656,000 ha. and the draining of 615,000 ha.

In the field of agricultural mechanization a production of 325,000 tractors or other agricultural machinery and the building of 950 agricultural stations for the provision of seed and agricultural machinery is planned.

Education on agricultural subjects will be increased by the teaching of agronomists, engineers, animal husbandry experts and veterinary surgeons, etc.

The improvement of breeds, especially that of dairy cattle so that the yield may be increased by 67 %, will be sought by means of a better animal husbandry system. A great increase in the production of feedingstuffs is also anticipated.

A complete program for rural housing must be added to the other vast plans. The kolkhoz farms will be expanded and scientific work of an agricultural nature will be encouraged and facilitated.

## Greek olive oil production

In a communication to *Olearia* (Rome, February 1948), Mr G. Filippopoulos gives the figures for recent Greek olive crops:

	Olive oil	Table olives
1944-45	90,000 tons	35,000 tons
1945-46	97,000 »	42,000 »
1946-47	80,000 »	30,000 »
1947-48	145,000 »	50,000 »

Before the war, the average production for the years 1932-37 amounted to 118,412 tons oil and 35,660 tons table olives. The average annual exports (1933-38) stood at 12,750 tons oil and 14,285 tons table olives, while national consumption (direct, indirect and industrial) attained an average of 106,000 tons for oil and 30-35,000 tons of table olives. This latter figure refers only to the large olives prepared industrially, and does not include dressed olives and olives for family consumption which come to a considerable amount.

After the liberation (October 1944), domestic consumption of olive oil was 10 to 15 % less than at the end of 1940. This reduction may be attributed to the economic difficulties of the people. Up to 1947 all exports of olive oil were prohibited in order to ensure supplies to the people and to stabilize prices. This measure, however, did not have much effect as large consignments were warehoused by the wholesale producers and never reached the market. A larger quantity of low grade oils than before the war was utilized in soap-making.

There are no restrictions at present on the export of olive oil provided that (a) no sales are authorized at prices below the average in dollars fixed progressively by the Ministry of National Economy on the basis of international prices; (b) the exporter pays in drachmae a special tax for every kilogram exported. This tax serves to maintain domestic prices below the international prices to the benefit of the people. The export trade has not been very brisk these last few months.

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In 1947 the Italian flax crop amounted to 200,000 quintals of stems. Only 4,500 ha. were grown to flax, considerably below the average of 8,000 ha.

The bast represents 10 to 12 % of the total weight. The yield in fibre may be calculated at 4 to 500 kg. National requirements in flax fibre amount to approximately 3,000 quintals.

Flax cultivation is being encouraged in Italy and flax-seed is being sought from the Netherlands and Belgium in order to improve the quality of Italian flax, as although the plants are hardy, the fibre is mediocre. Flax pests will be controlled with DDT.

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Compared with last year the area under flax in Russia has increased by 21 %.

According to the five-year plan for the reconstruction and expansion of Soviet economy the total flax fiber crop for the period 1946-1950 will be raised to 800,000 metric tons in the next two or three years. All planting will be done with high grade seed and all cultivation and preliminary treatment of the flax will be mechanized.

## Air photography as an aid in agriculture

Mr. J. Lavoine, Chief Engineer of the Agricultural Division, has published in the 'Bulletin technique des Ingénieurs des Services agricoles' (November-December 1947), a study on air photography for agricultural purposes. The author points out the importance of air photography for analyzing and examining rural environments and for carrying out land reclamation work. Ordnance maps only give a more or less complete and exact outline of the terrain, while air photography furnishes both the outline and the image of the nature of the terrain and the soil cover. By stereoscopic examination, air photography makes it possible to determine the relief, hydrography, geology, vegetation and action of man on the soil: habitat, parcelling of fields, roads, canals, crops, traces of extinct civilizations, etc. The nature of the soil, humid or dry zones, density of the forests, orchards and often even of the different crops, can be clearly discerned. It should be remembered, however, that air photography gives a picture of the subject on the specific day and even at the hour when the photograph was taken, and that the aspect varies according to season and lighting.

The agricultural divisions of the Ministry of Agriculture possess air photographs covering an area of 640,000 ha., figure which will total 3,640,000 ha. at the end of the year. In France, May to August are the most suitable months for taking air photographs. Most of the air surveys in the photo-collections of the National Geographic Institute are taken to a scale of 1:20,000 and 1:24,000, which is too small for direct examination of the photographs. The survey division, however, generally utilizes 1:5,000 scale prints which show the smallest details.

The author does not consider that air photography will be resorted to in determining agricultural statistics, because it would be too costly and very difficult from the technical standpoint to carry out periodically an air survey of the entire country. On the other hand, the sampling method with extrapolation of results for a whole region is more feasible. This method has been employed in the United States for a sharply defined objective with



a view to determining soil types, their utilization and degree of erosion. The areas covered by a certain crop or certain form of vegetation were indicated on the photos in colour. It sufficed to cut out and weigh together the pieces of the same colour to obtain the required area on a scale of about 1:1,000. Although this method comes up against practical difficulties in countries where the farming regions vary and where the land is more split up than in the United States, in the author's opinion, it is worth experimenting. Comparison of the photos with cadastral plans would permit calculating accurately the areas covered with woods and forests, the areas with heaths, pools, marshes, moors, mountain rocks, pastures, grassland, vineyards, kitchen-gardens, truck crops, fruit crops, etc.

The author concludes that, after more precise tests, air photography will assuredly develop into a means for checking agricultural statistics.

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The 'Bulletin Technique d'Information' issued by the French Ministry of Agriculture gives in its number of February 1948 a study by H. Failly and A. Pointet, on model farms ('ferme-pilote'). A model farm is a well-run unit which utilizes modern techniques of production and whose results may serve as an example for the farmers of the district.

It is by no means a research institute, but an average farm with an enlightened management which can be called on to help disseminate modern agricultural knowledge; at the same time, its careful book-keeping serves as a valuable source of information for the Research Centre itself, which is naturally in permanent contact with the farm management, and gives the necessary expert advice. The working of such a model farm can be followed by means of a concrete example in the article mentioned above.

## ANIMAL PRODUCTION



### Stockbreeding and milk production in Bulgaria

Stockbreeding plays an important part in Bulgarian agriculture. Animal and more especially dairy products not only serve for domestic consumption, but also support a substantial export trade. Serious inroads have been made on stock-

breeding through mass slaughtering during the war and the short crops obtained in the last three drought stricken years. Official figures (Statistics Department) indicate that, compared with 1939, animal production dropped 55 per cent. in value in 1946. The economic program aims not only at restoring stockbreeding to its normal level, but to increase output value 16 per cent. over the 1939 figure, by adding to the herds and by raising the average yield.

The milk yield of ewes and cows is also to be increased. Before the war the average commercial yield per cow amounted to 1,000 litres. In 1946, because of the drought, the yield fell to 700 litres, that is, 30 per cent. It is planned to raise the milk yield per cow to 1,200 litres.

Information on the output of milk and dairy products in 1946 is given in the latest number of the Monthly Bulletin of the Statistics Department, No.1 (January) 1948, p. 17. In 1946 the quantity of fresh milk collected by the dairies totalled 24,940,000 litres (privately-owned dairies 5,393,000 l. and cooperative dairies 19,547,000 l.).

Ewes supplied the major quota: 18,808,000 litres, i.e., 75 per cent. of the total milk production; cow's milk amounted to 3,048,000 litres, slightly over 10 per cent., goat's milk 1,118,000 l. and buffalo milk 288,000 l.

This milk was processed (1946) into 1,454 tons of kachkaval (Gruyere cheese type), 2,494 tons ordinary cheese, 139 tons table butter, 144 tons cooking butter and 788 tons curds.

For the reasons mentioned above, the quantity of dairy products manufactured in registered enterprises in 1946 fell short of domestic requirements. With the economic program, however, prospects are promising. Measures have been taken to develop milk production, for instance, improved domestic forage supplies, more extensive use of concentrates, application of industrial processes in butter and cheese-making.

### Ensiled green forage as stockfeed

Mr. S. Z. Zelter, I. A. N. agronomist, and Mr. A. M. Leroy, professor at the National Agricultural Institute of France, report, in the *Annales Agronomiques* (Jan. Feb. 1948), the results of experiments on the use of ensiled green fodder. Although these experiments, as the authors themselves point out, did not cover a long enough period for positive conclusions, the preliminary results, however, may provide some facts of immediate practical importance.

Before reporting the conclusions of these two investigators, it should be noted that they organized their experiments according to the scant

means at their disposal, using green forage treated with formic acid and preserved in stacks or silo vats. Ensilage was effected between June and September 1946 and stockfeed tests were carried out from November 1946 to April 1947. The forage ensiled was vetch-oats, and 2nd, 3rd or 4th cuts of lucern.

The stack silage proved to be very poor and only a sixth part could be eaten by stock. The silage in the silo vats came out very well and was relished by the animals. The daily consumption of these ensiled forages per animal varied, according to quality, between 10 and 24 kg.

The type and quality of silage utilized during the different experiments are summarized in Table I, while Table II gives the chemical composition and feed value of the feedingstuffs employed in the course of the tests.

After having studied their experiments and the results obtained, the authors came to the following general conclusions:

(1) Fattening cattle with beet pulp and green silage is a feasible proposition. This feed system requires a slightly longer fattening period than when concentrates are used, but is compensated by the appreciable economy realized through the

practically complete elimination of expensive concentrates.

(2) By giving a daily ration of 20-25 kg. of good quality green silage (legumes) to milch cows, the consumption of concentrates can be reduced by 2 to 3 fodder units per cow per day, without upsetting the nitrogen balance of the ration, and without impairing the average milk yield of the herd. This practice is not recommended to stockbreeders who keep the milk for making hard cheeses (Gruyère).

(3) The utilization of the 3rd and 4th cuts of lucern is made possible by ensilage. As these cuts can seldom be turned into hay in the late season, ensilage is a means of obtaining an appreciable forage reserve for the winter.

(4) The shortage of stockfeeds should prompt the stockbreeder to introduce ensilage in his farm, as it is an aid in covering the energy and nitrogen requirements of his stock.

(5) As it was impossible for the authors to undertake comparative tests on the different ensilage techniques, they do not feel justified in recommending any specific method. In their opinion, it would be of interest to resume these experiments on a larger scale.

TABLE I

Type of ensiled forage	Date of ensilage	Silo	Treatment	Date of opening silo	% loss in fresh matter	% fibre in dry matter	Digestible protein in grams per kg. of fresh products	Average content of silage in grams per kg. of fresh product			
								Total free acid expressed in H <sub>2</sub> SO <sub>4</sub>	Total acetic acid	Total butyric acid	Total lactic acid
Lucern, 2nd cut with very large stem, far advanced in flowering stage	25/6/46	Stack	Ordinary formic acid 90 % and activated formic acid	25/11/46	51.36	42.9	28.8	1.69	3.84	4.79	6.80
Vetch-oats, onset of flowering stage	5/7/46	Drained silo vat	Activated formic acid	19/11/46	27.03	33.3	14.3	2.22	6.62	16.23	2.99
Lucern, 4th cut, very tender with short stem	27/9/46	Drained silo vat	Activated formic acid	7/1/1947	7.01	24.5	31.2	2.37	8.50	10.91	11.72
Lucern, 3rd cut, tender with medium stem	16/9/47	Drained silo vat	Ordinary formic acid	3/3/47	10.21	29.8	26.1	2.28	6.67	12.42	7.13



TABLE II

Type of feed	In grams per kg. of fresh product									
	Dry matter	Proteins	Fats	Fibre	N-free extract	Minerals	Crude organic matter	Digestible organic matter	Digestible proteins	Forage value
<i>Experiment I</i> (fattening steers)										
Fresh beet pulp . . . . .	70.0	6.0	0	14.0	47.0	3.0	67.0	53.0	3.0	0.063
Wheat chaff . . . . .	840.0	47.0	17.0	304.0	371.0	101.0	739.0	332.0	14.0	0.151
Lucern hay . . . . .	900.0	117.6	35.2	393.2	298.5	55.5	844.5	447.7	75.0	0.407
Barley . . . . .	857.0	94.0	21.0	39.0	678.0	25.0	832.0	722.0	66.0	1.03
Concentrate mixture . . .	893.5	174.9	49.0	81.9	553.0	34.7	858.7	656.1	133.6	0.926
Lucern silage, 2nd cut	284.8	38.4	12.1	122.3	85.5	26.6	258.3	142.9	28.8	0.134
<i>Experiment II</i> (milch cows)										
Fresh pulp . . . . .	70.0	6.0	0	14.0	47.0	3.0	67.0	53.0	3.0	0.063
Mangolds . . . . .	120.0	12.0	1.0	9.0	87.0	11.0	109.0	94.0	8.0	0.119
Wheat chaff . . . . .	840.0	47.0	17.0	304.0	371.0	101.0	739.0	332.0	14.0	0.151
Lucern hay . . . . .	898.5	180.0	44.0	250.0	344.5	79.8	818.8	468.8	123.0	0.471
V4 concentrate . . . . .	887.4	112.5	49.5	73.9	573.4	78.1	809.3	643.1	89.4	0.901
Vetch-oats silage . . . . .	173.8	22.1	8.8	57.8	47.8	37.3	136.3	84.3	14.3	0.078
<i>Experiment III</i> (milch cows)										
Ensiled pulp . . . . .	127.1	16.9	6.6	48.7	46.8	8.1	119.0	72.2	8.5	0.081
Formic pulp . . . . .	107.7	11.8	3.4	25.0	60.9	6.6	101.1	66.3	5.9	0.076
Wheat and oats chaff . .	896.4	41.7	33.0	286.5	410.6	124.6	774.7	357.0	14.2	0.20
Molasses . . . . .	781.0	105.0	0	0	604.0	72.0	709.0	603.0	54.0	0.736
Meadow hay . . . . .	901.2	60.9	28.4	304.6	435.8	71.5	829.8	487.2	33.9	0.483
Lucern hay . . . . .	872.0	113.4	34.5	330.2	328.8	65.0	807.0	445.0	77.5	0.424
Concentrate mixture I . .	894.2	178.5	64.4	116.2	476.2	58.9	835.3	584.7	125.0	0.775
Concentrate mixture II .	901.1	199.2	75.5	105.8	470.2	50.4	850.8	613.7	143.7	0.85
Ensiled lucern, 3rd cut .	205.5	38.7	13.9	61.3	62.3	29.3	176.1	101.6	26.1	0.10

(1) The introduction of 10 kg. of silage in the daily ration of the test steers permitted reducing the consumption of concentrates by 40 per cent. On some days when good quality silage was available, the concentrated feed was substituted by rations of 24-25 kg. silage. The addition of a very small quantity of concentrates, however, is recommended in order to speed up fattening.

(2) It is difficult to interpret the results of this experiment owing to the sudden winter cold during the test period (mid December) causing individual reactions among the animals which hindered the normal progress of the tests.

(3) The feeding of some twenty kilograms of green silage, entailing a reduction in the consumption of a quantity equivalent in energy value of concentrates, did not cause any falling off in yield, and permitted a considerable saving in concentrates.

## Poland advances vaccine programs

(Extract from *FAO Information Service Bulletin* Washington)

Progress has been made in the local manufacture and use of vaccines to control animal diseases in Poland, according to Martin Kaplan, veterinary expert sent by FAO at the Polish government's request to assist their technicians. Dr. Kaplan recently returned to FAO Washington headquarters after six months in Poland.

Experiments are in progress to test the efficiency of hog cholera crystal violet vaccine manufactured at the Polish National Veterinary Production Laboratory. If tests prove successful, a large batch of vaccine will be manufactured and tested under FAO supervision. After that, Polish personnel will continue the work.

Tests on chickens with the Newcastle disease vaccine are being made. Results have been encouraging. When challenged with the virulent virus of the Polish strain, all the vaccinated breeds tested survived, and the controls died. If a larger experiment also proves successful, the vaccine will be tried under restricted conditions in the field before adopting it for general use.

Large-scale measures for the control of bovine tuberculosis and brucellosis, which cause tuberculosis and undulant fever in human beings, have been launched and will apply to about 30 per cent of the cattle population of Poland.

A concentrated effort against bovine tuberculosis in Lodz has been co-ordinated with a program of the Ministry of Health in that province. The World Health Organization assisted the Polish government in the organization of a demonstration

campaign against tuberculosis in Lodz. FAO was requested to use its influence to secure inclusion of the animal population in the plan.

## Livestock improvement programme of Near East Foundation in Greece

By courtesy of Mr. J. M. Halpin of the Near East Foundation in Athens we have received an operational report containing some particulars on the activities of his organization which might be of interest to our readers.

On March 15, 1948, the draft of a tripartite agreement between the Greek Ministry of Agriculture, the American Mission for Aid to Greece and the Near East Foundation was signed; according to this document, which was devised as a Co-operative Agricultural Programme, the Mission will make certain amounts of money available to the Near East Foundation to help it in carrying out its projects in cooperation with the Ministry of Agriculture. The Near East Foundation immediately afterwards began the expansion of its livestock improvement programme.

Its work, however, was impeded by the outbreak of foot-and-mouth disease, particularly in the Salonika area, where it seems to be endemic. Some experts felt, after an investigation of the stables where the outbreak took place, that the disease might be 'Vesicular stomatitis' and it was hoped that conditions would soon return to normal in this area.

In the Chalkidiki area, 12 villages have been selected to serve as centres for artificial insemination for altogether twenty villages, with a total cow population of about three thousand head. The local farmers manifest a great interest in the progress of this work.

The work of artificial insemination at the Athens Station was also hampered by the outbreak of foot-and-mouth disease. However, the personnel are confident that when conditions return to normal that the work will once again continue to increase, and the farmers will resume bringing their cows, as their confidence has been gained. The results that have been checked in the large commercial dairies of the Athens area show that an average of 1.75 services were required for each calf born. This can be considered as satisfactory, in view of the fact that all services were figured regardless of whether the cows were later discarded as sterile.

\* \*

The Italian Experiment Institute 'Lazzaro Spallanzani' of Milan (Director Prof. Bonadonna) and the UNRRA Agriculture Division carried out a cooperative experiment in March 1947 which consist-

ed of bringing live bull sperm from the United States by airplane to be used for artificial insemination of dairy cows in Italy. The sperm was collected from an outstanding proven Brown-Swiss bull and Holstein bull in the United States. Dr. Perry of Rutgers College in New Jersey took care of the collection and the air-shipment from the United States. The Zooprophyllactic Station at Rome in cooperation with the Artificial Insemination Institute at Milan took charge of receiving, diluting and repacking the sperm material prior to insemination. To date births of 35 calves have been reported consisting of 19 males and 16 females. The calves born from this experiment are 12 Brown-Swiss and 23 Holstein all normal as regards weight and general health.

## Fowl pest

A paper by Mlle G. Cordier and MM. J. Clavieras and Aziz Ounaïs on fowl pest immunization experiments was presented before the meeting of the Science Academy, Paris, on 1 March 1948.

In the first series of experiments, the vaccinal virus was spleen virus collected from fresh carcasses or from destroyed diseased fowls. In the second series the virus used was a chick embryo culture. The two viruses proved  $1/10^5$  infectious. The embryo medium, with comparable virulent value, was found to be a much more abundant and economic source of virus and not cumbersome to handle. Two processes, already experimented by one of the investigators in immunization tests on foot-and-mouth disease, were applied: process by virus adsorbed by carbon and process by virus emulsified in a fatty medium. The following conclusions were drawn:

(1) Fowl pest virus is adsorbable by vegetal carbon; this property may be turned to account in the preparation of a vaccine; (2) With formol treated virus adsorbed by carbon or emulsified in lanoline, liquid paraffin, a vaccine can be obtained which will produce resistance to fowl pest, evident after 15 days; immunity apparently remains unchanged two and a half months later; (3) the virus culture can be substituted for the virus in preparing these vaccines.

\* \*

In Italy a working program in favour of poultry breeding has been drafted and made effective by a legislative Decree of 20 April 1948. Italian poultry production is to be reorganized and fostered by means of poultry centres. The program will include the reorganization of established poultry institutions; the study of rural poultry breeding and the distribution of selected stock adapted to specific conditions; the improvement of technical



equipment and the care of hen-houses; control of the production of breeding stock; assistance to agricultural organizations; encouragement of all initiative considered useful for poultry production. Similar measures will be applied to rabbit-breeding and the raising of fur-bearing animals.

MILK AND MILK PRODUCTS



Dried skim milk and related problems

Since a large part of the world does not have enough milk and milk products, it is important to consider every possible means of increasing the supply. A substantial potential increase can be found in the use of skim milk, a food of high nutritive value which can be supplied at a much lower cost than the same nutrients in whole milk. An increase in the consumption of skim milk would greatly improve the nutritional status of millions of people, particularly children.

At present the greatest part of the skim milk remaining after the manufacture of butter is fed to animals and some of it may even be thrown away. The two problems which immediately arise are: how to encourage increased consumption of dried

skim milk, and how to assure stable markets to the producers. Unless the farmer has other protein feed for his animals at a cost no greater than that of the skim milk, he will feed the milk to his animals. Arrangements should be made, where feasible, to collect whole milk rather than cream from the farmers, and factories should have equipment to process skim milk for human consumption. No such arrangements can be successful, however, until a stable demand for skim milk products is created.

There is need to convince consumers of the nutritive value of skim milk, its low cost, and its palatability when properly reconstituted. Methods of using the skim milk and its products should be more widely known; school-feeding programs can contribute to spreading this knowledge. In order to secure larger production, feeding programs should be developed to ensure consumption of the proportion of total output designed for use in the producing country. Long-term guarantees of demand are needed in order to stimulate production for export.

The report presented to the Council (CL 2/7) analyzed these problems and also stressed the importance of organizing milk supplies so that whole milk, either fluid or processed, is made available to young children. The International Children's Emergency Fund, in collaboration with FAO, has made a survey of the milk supply position in a number of countries in Europe and has requested further assistance of FAO in helping Governments in their plans for increasing production of milk and ensuring the best use of the milk supply for children, adolescents, and pregnant and nursing women.

The Council recommends that the milk supply position in Europe, with special reference to the needs of young children should be further investigated by FAO both at headquarters and through the European Office.

ESTIMATED PRODUCTION AND UTILIZATION OF SKIM MILK IN VARIOUS COUNTRIES

Country	Period	Production Whole Milk	Production Skim Milk	Skim Milk Production as percent of Whole Milk Production	Utilization for human consumption	
		(Thousand metric tons)	(Thousand metric tons)	(Percent)	(Thousand metric tons)	(Percent)
United States . . . . .	1945	56,500	21,000	37	5,900	28
Canada . . . . .	"	7,995	3,225	40	217	7
Australia . . . . .	"	4,990	2,850	57	14	1
Denmark . . . . .	1946/47	4,650	2,800	60	485	17
Netherlands . . . . .	"	3,700	1,240	33	500	40
Czechoslovakia . . . . .	"	2,730	860	31	590	71
France . . . . .	"	10,880	3,100	28	130	4
Poland . . . . .	"	2,790	750	27	400	53
Norway . . . . .	"	1,140	250	22	60	24
Hungary . . . . .	"	770	110	14	70	64
Switzerland . . . . .	"	2,164	293	14	172	59
Rumania . . . . .	"	2,050	240	12	140	59
United Kingdom . . . . .	"	7,830	435	5	200	46

The Council also suggests that FAO, in collaboration with WHO, should examine existing regulations in different countries controlling the import and sale of skim milk, with a view to discovering whether these operate to prevent or restrict the consumption of skim milk by older children.

## AGRICULTURAL INDUSTRIES



### Fertilizer situation in France

In a Circular dated 30 March 1948 the French Ministry of Agriculture specifies the terms and conditions relative to the assignment of fertilizers for the 1948-49 season.

The general directives are based on the following main points:

Delimitation of the fertilizer season calculating the actual period for utilizing fertilizers.

Retaining of pre-war figures (1937-39) for estimating the fertilizer quotas to be distributed for national requirements.

Establishment of the present respective rights of the different categories of distributors (cooperatives, wholesale-traders, manufacturing distributors).

The farmers are allowed to request, through the intermediary of the distributors, the amount of single and mixed fertilizers, in the assignment due to them, they desire to have.

The 1948-49 season has been fixed at 10 months dating from 1 July 1948.

The special situation of fertilizers has been examined. The monthly average production of nitrogenous fertilizers for the 1938-39 season amounted to 15,400 tons of nitrogen, while the monthly average from July 1947 to March 1948 was 13,400 tons. In order to determine the nitrogen tonnage to be reserved for the manufacture of mixed fertilizers for 1948-49, the Ministry of Agriculture undertook an enquiry among the departmental agricultural bureaux. In 1938-39, out of 219,600 tons of nitrogen consumed, 151,700 tons were utilized in the form of single fertilizer and 67,900 tons as

mixed fertilizer, including 8,000 tons of organic origin.

Superphosphate production is showing a slight increase.

In 1947, the average monthly output of Thomas slag amounted to 46,400 tons; in March 1948 it had increased to 62,500 tons, and in April 71,730 tons were available for use in France (69,954 tons from French factories and 1,776 tons from the Saar).

The 1947-48 season for potash fertilizers will close 30 June. The quota allotted for metropolitan France — 357,800 tons — will probably be delivered in full at that date.

Despite various difficulties, deliveries of mixed fertilizers are being continued normally. On 31 March 1948 they totalled over 610,000 tons.

(Abstracted from the 'Bulletin des Engrais', Paris, April 1948).

### Use of liquid ammonia in compound fertilizers

The 'Fertilizer', — official organ of the Association of British Fertilizers Limited — gives, in its issue of 7 April 1948, the news that liquid ammonia (i.e. anhydrous ammonia under pressure and not a solution of the gas in water) has been successfully used in the manufacture of compound fertilizers. It is perhaps not so widely known that last year in the United States 200,000 acres of farm land growing cereals and cotton were successfully fertilized with direct soil applications of this material. Injection at a depth of 4 in. covered immediately with a ploughing or discing operation gave superior uniformity of dressing and better crop yield responses than those comparably obtained with ammonium nitrate. Moreover, the unit costs of nitrogen were 6 cents a pound for the liquid ammonia source, against 10 cents for ammonium nitrate. Corn, oats, and cotton were the principal crops treated.

The obvious risk of loss to the air is reduced to insignificance so long as the injection is rapidly covered with soil. There is also no significant loss by leaching until soil actions have converted the ammonia into the nitrate form. In dry weather the superiority of crop response is considerably increased. Liquid ammonia is not yet regarded as a practical proposition for top-dressings or side-dressings during actual plant growth. It is ideally suited for base applications at or just before sowing times, but on soils that are strongly acid and therefore very slow in nitrification rate, autumnal applications were superior to spring applications of ammonium nitrate.



The principal equipment requirements are a trailer tank and a tractor type application machine.

Speed of application is said to be much greater than the best speeds obtainable with solid nitrogenous fertilizers — up to 40 to 80 acres per day compared with 25 to 40 acres per day with solid fertilizer equipment.

## VIIth International Congress of Agricultural and Food Industries

The VIIth International Congress of Agricultural and Food Industries will meet, at the invitation of the French Government, in Paris from 12 to 18 July 1948. This event, the technical organization of which has been entrusted to the International Committee of Agricultural Industries, will, in view of the number of governments expected to attend and the capacity of the experts who will present reports, be particularly interesting. M. André Mayer, Professor at the 'Collège de France', Chairman of the 'Comité français interministériel de l'Agriculture et de l'Alimentation' (French FAO National Committee), will give a lecture on the importance of improving the technique of agricultural industries in combating malnutrition. M. Bossaert, Chairman of the 'Fédération des Syndicats de l'Alimentation belge', will treat on the problem of stabilizing world prices for agricultural raw materials.

The Congress will cover over thirty sectors and the following questions will be discussed:

*scientific* (analytical methods, vitamins, hormones and oligo-elements, etc);

*technical* (ion exchangers in sugar manufacture, fermentation in oenology, malt disintegration, baking value of wheats, rational utilization of the harvester-thresher, improvement of the dairy and canning industries, new stock feeds, digestibility of fats, etc);

*economic* (standards of quality, census, standardization of statistical methods, etc.);

*instruction* (organization of technical instruction, training of engineers, etc.).

## Sugarbeet research in Belgium

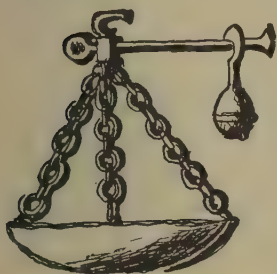
The Belgian Institute for beet improvement has extended research work on all aspects of beet-growing. Particular attention has been given to

the single-seeded glomerule and its merits and disadvantages have been determined. Further investigations require to be carried out in order to ascertain whether the use of the single-seeded glomerule will reduce labour at the time of spacing and singling. The fertilizer value of sodium has also been studied. Encouraging results in nematode control have been obtained by means of a suitable rotation according to the known extent of infection, and disinfection of the soil by volatile fumigants. In testing out new insecticides, in 1947 an invasion of the beet fly in Belgium was completely arrested. Mention may also be made of other beet improvement work effected by the Institute: the use of hexachlorocyclohexane products for the control of the pigmy mangold beetle (*Atomaria linearis*), the creation of polyploid types, genealogical selection of the beet with the twofold objective of creating a variety adapted to Belgian ecological conditions, and of gradually making Belgium independent of imported beet seed, at present amounting to one million kg. to the value of 30 million Belgian francs. (From 'Le Sillon belge', No. 297, 28 March 1948, p. 15).

## The sugar situation in Switzerland

(Communication from the Swiss FAO National Committee).

Called upon to decide on the future sugar program, the Swiss, on 14 March 1948, rejected the plan presented by the Government and the administrative boards. The proposed law authorized extending sugarbeet growing in Switzerland and building a new sugar-mill for processing the supplementary crop. In order to subsist despite foreign competition, this enterprise would require official guarantees as regards disposal of the product and prices. For this reason the law included a referendum clause. Although Switzerland merely covers 10 per cent. of its sugar requirements and the measures in question would only raise this percentage by half, the people declared against this project. The crop program drawn up for ensuring the food supply of the country was to have included increased sugarbeet production. By its decision, the people showed that it wanted the cost of living lowered and State intervention in economic matters reduced to a minimum. It is possible that it was also desired to take care of the interests of the export industry. The problem of sugarbeet cultivation, however, has not yet been settled; another solution will have to be found.



## Farm accountancy statistics

The November-December 1947 number of the *Magyar Statisztikai Szemle* (Hungarian Statistics Review) publishes an interesting article by Mr Lajos Kesztyűs on farm accountancy statistics. The author stresses the importance of farm accounts based on yearly crop returns.

In farm accountancy two aspects have to be considered: on the one hand the data supplied by the same farm over several consecutive years; on the other, the data for a certain number of farms for one year, or the average data for several years. In this way the earning capacity of different types of farms in different regions can be determined.

For use in elaborating an agrarian policy, farm statistics can be worked out in a relatively simple form, but, owing to the variety and number of data to be collected, they should be on as wide a basis as possible. In effect, farm statistics are the basis of all efforts concerning the following: judging in agrarian planning the different systems of cultivation and farming; assessing land tax, income-tax and tax on property in relation to the economic yield of the soil established by fixing, in farm loans, a rate of interest in proportion to the earning capacity of the land; determining the capacity of agriculture to bear tax and other burdens and survive slump periods; stipulating trade agreements; land consolidation; irrigation projects; comparing, from the standpoint of private and national economy the money returns of midget, small and below medium-sized farms; regulating wheat production, supply and collection; establishment of up to date production and sales cooperatives; price statistics in controlled agriculture, that is, fixing prices of agricultural produce in proportion to the price of farm material and of industrial products; lastly, applied knowledge of farming and estimation of income from the land. It is not enough, therefore, to group the farms in different categories such as: midget farms of 1 to 5 'kadastral hold' (1 k.h. is equivalent to 0.575 ha.), small peasant farms of 5 to 20 k.h., peasant farms of 20-30 k.h., large peasant farms of 30-50 k.h., farms of 50 to 100 k.h. and farms over 100 k.h. Only indicative statistics of accounts,

covering an adequate number of farms in each of these categories, could supply really useful data.

On the other hand, farm statistics established from the standpoint of farm management should indicate the average of the data concerning specific zones presenting natural and economic conditions as homogeneous as possible; accountancy sectors comprising 6 to 8 farms of the same size, having a similar topographical lay-out, soil quality and equipment; and regions grouping several of these sectors. The comparison of the average data for several similar sectors brings out certain common characteristics of farming regions. It is by comparing the averages for the different farming regions that the fundamentals of the theory of farm organization are reached. To be able to perfect the farm economic theory, it is particularly advisable to complete the former deductive method by earning capacity results, which entail an inductive statistical method. In addition, to be able to understand the action of farm factors which determine production conditions, the individual results should be worked out to objective average figures, eliminating the personal factor, namely, the farmer, and thus allowing comparisons to be made. The statistics of the farm economic theory, therefore, aim at determining, by utilizing the average data supplied by the representative farm groups, the regular factors which characterize a specific type of farm and intensive cultivation. In farm economy theory, the most recent investigations on the so called law of average money returns are based on the statistics of the accounting of a selected group of several farms.

The third objective to be attained by means of farm statistics is the supplying of advice to the farmers. The statistics of farms taken separately and more especially the comparative method of farm statistics are suitable for this purpose. An 'appraisal form' is drawn up in order to compare the farm under investigation with the average of those which give a satisfactory net income (standard farms), with a view to increasing their earning capacity. The results for farms where this average is exceeded should be compared with those of what are called 'key-farms' so as to raise them to the same level.

During the years 1931 to 1944, the Debrecen Accountancy Centre coordinated the statistical results of approximately 1,500 small farms and the Farming Institute, between 1940 and 1944, supplied advice to 600 smallholders, whose expenditure and returns were recorded. It is expected that in 1947 work will be extended to some 150 peasant farms.

The work outlined above is of particular importance in Hungary where small farms predominate. The solution of problems of this kind is entrusted to the Accountancy Centre for small farmers, attached to the Farming Institute, which pertains to the University of Agricultural Sciences. Agri-



cultural secondary schools and agricultural technical schools, as well as agricultural shows, also collaborate.

## Polish exports

*(Sent by the Hungarian National Committee of FAO)*

The 1948 export programme for agricultural produce and foodstuffs total a value of 60 million dollars. The most important exportable commodities are sugar and sweets. Potatoes for seed will be exported only after domestic requirements are met. Exports of vegetables, fruits, mushrooms, whortleberries and medicinal plants are also planned. The exports of dressed poultry, canned meat, game, fish, feathers and bristle, are being continued. The execution of the programme depends on the domestic market conditions.

In December 1947 Poland began to export potatoes and onions. During that month Poland exported through cooperatives 10,583 tons of potatoes to Czechoslovakia, 10,319 tons to the Anglo-American Zone of Germany, and 500 tons of onions to England.

## Trade agreements

An agreement was signed in Brussels on 6 March 1948 by the **Belgian-Luxembourg Economic Union** and the military government of the **French Occupation Zone in Germany** for the period 1 March to 31 August 1948. By virtue of this agreement, the French Zone will export to the Union mainly farm machinery (10 million francs), coniferous wood (2-300,000 m<sup>3</sup>), wallpaper, porcelain clay, refractory clay, glaze, hosiery needles (4 million), silica bricks, aniline dyes. The Belgian-Luxembourg Economic Union will deliver to the French Occupation Zone potatoes (10,000 t.), leather soles, industrial sodium sulphate, zinc and crude tin, semi-finished copper products. In a supplementary note, the delegation of the Belgian-Luxembourg Economic Union indicates its desire to import from the French Occupation Zone malt, hops, newsprint, aluminium, carding and felting needles. The Union would also like to export cotton and raw rubber from the Congo, dried peas, early table potatoes, horses, hides, chemicals.

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On 12 March 1948, the **Belgian-Luxembourg Economic Union** signed a trade agreement in Brussels with **Norway** for the duration of 1948. Goods to the value of about 1 milliard Belgian francs will be exchanged. Norwegian exports will

consist mainly of medicinal cod-liver oil, fish oil for veterinary and industrial uses, crude whale oil (10,000 t.) and hydrogenized whale oil (5,000 t.), fresh and frozen herrings (5,000 t.), salt herrings (10,000 barrels), smoked herring for the Belgian Congo, fresh and salt fish, salt cod, tinned fish and shellfish, fish-meal (3,000 t.), plywood, sawn and planed lumber, mechanical wood pulp (50,000 t.), fibre, telegraph poles (20,000), products for the textile industry, fox-skins, fish-hooks. The Belgian-Luxembourg Economic Union will supply Norway chiefly with various chemical products including 10,000 tons superphosphates and 5,000 tons basic slag, medicaments and medicinal plants, rubber and rubber goods, paper, metal products, non-ferrous metals, glass, textile products (woollen, cotton, rayon, linen, jute and hempen yarn, fabrics, clothing and stockings), leather and leather goods, Congo maize (1,000 t.), horticultural and nursery products, Luxembourg wines and sparkling wines.

\* \* \*

At the end of April a trade agreement was signed by **Bulgaria and Czechoslovakia** for the period up to 31 December, 1948. Czechoslovakia will export industrial iron products, machinery, pharmaceutical products, paper, glassware, pottery and textile products. Bulgaria will export raw material for the metallurgical and the leather industries, as well as agricultural produce such as rice, maize, beans and tobacco.

\* \* \*

A treaty covering trade exchanges, navigation and technical assistance was signed in Moscow on 1 April 1948 by **Bulgaria** and the **U. S. S. R.** for the duration of the year 1948. The value of the goods exchanged will amount to over 94 million dollars. The Soviet Union will deliver among other goods 100,000 tons of metals, paper stocks, cotton, chemicals, fuels and other raw materials. Bulgarian supplies to the Union will include 22 million kg. tobacco. In conformity with the technical assistance clause, Soviet scientists and specialists will visit Bulgaria to explore the natural wealth of the country with a view to its rational development. Bulgaria also signed a protocol, according to which the Bulgarian maritime and river fleet, in cooperation with the Soviet ships, will provide for the transport of goods from the U. S. S. R. to Bulgaria and vice versa.

\* \* \*

On 28 April 1948 a new trade agreement between **Czechoslovakia and Belgium** was signed at Brussels to replace the agreement which expired at the end of February. This new agreement will increase trade between the two countries.

Belgium will import goods from Czechoslovakia for 1.9 milliard crowns and export for 1.7 milliard crowns.

\* \*

On 23 March 1948, the fifth additional protocol to the **Czechoslovak-Swiss** commercial treaty of 16 February 1947, was signed, modifying, with effect from 20 April 1948, tariff tables annexed to the original treaty.

\* \*

A new trade agreement was signed in Prague between **Czechoslovakia** and **Yugoslavia** on 24 May 1948. The agreement is valid until 31 December 1948 and provides for an exchange of goods to the value of 2,500 million Czechoslovak crowns on each side. Yugoslavia will export mainly precious metals, ores, agricultural products such as meat, maize, oil seeds, eggs, and fodder, as well as timber, raw hides, chemical raw materials, small quantities of wine, tobacco and fruit. Czechoslovakia is to supply mainly metal, engineering and electrotechnical products, chemical and foundry products, and coke.

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A trade agreement was signed in Copenhagen on 20 March 1948 by **Denmark** and **Finland** in order to regulate the exchanges made during 1948. Finland will deliver, to a value of approximately 116 million crowns, lumber, cellulose (20,000 t.), wood pulp (10,000 t.), newsprint (13,000 t.), packing paper (4,800 t.), pasteboard, china and earthenware, sanitary and household requisites. Denmark will supply Finland with beef, bacon, butter, lard, preserved milk, fish, malt, seed, fruit, pharmaceutical products, iron and metal products, different machines and apparatus and electric fittings.

\* \*

According to notes exchanged on 10 March 1948 between the **Danish** and **French** Governments, France undertakes to purchase fish from Denmark to the value of 6,500,000 crowns. In exchange, Denmark will authorize the importation of French merchandise such as cotton, woollen and artificial silk fabrics, dyes, passementerie, cigarette paper, various machines, hardware, optical glass and wine.

\* \*

A new Trade agreement for the period from 1 June, 1948 to 31 May, 1949 was signed at the Hague between **Denmark** and the **Netherlands**

on 29 May, 1948. The agreement provides for mutual commodity exchange to the value of about 65 million Danish crowns. Among the products supplied by the Netherlands are mentioned copra, pig-iron, tin, rayon, lubricants, chemical products, salt, various machines and apparatuses. Denmark is to export mainly cattle, tinned milk, casein, fish, seeds, dyes, cement, cryolite and various machines.

\* \*

The **Danish** and the **Norwegian** Governments ratified on 10 April the Danish-Norwegian trade and payment agreement concluded for the period up to 31 March, 1949. The agreement provides for the exchange of goods to the value of about 150 million Danish crowns by each country. Norway will chiefly send to Denmark whale oil (7,500 tons), industrial oil, medicinal and veterinary cod-liver oil, vitamin concentrates, timber, calcium nitrate, cyanamide, pyrites, crude iron, iron alloys, crude aluminium, semi-finished aluminium products, zinc, newsprint, pasteboard, parchment-paper. Inversely Denmark will furnish Norway with bacon, tallow, glycerin, malt, sugar, molasses, seeds, fruit and vegetables, casein, dyes, pharmaceutical, iron and steel products, machinery and electric fittings.

\* \*

A combined **Franco-Austrian** commission, acting in Vienna under the provisions of the Franco-Austrian trade agreement of 7 November 1946, after examining the bearing of the devaluation of the French franc on the prices, decided to replace the commodity and pricelists appended to the original agreement by new ones which are to be applied from 10 November 1947 to 10 November 1948.

\* \*

The French 'Moniteur Officiel du Commerce et de l'Industrie', gives in its No. 1295 of 13 May 1948 news of the new **Franco-Finnish** trade agreement signed in Paris, on 30 April 1948, which is to replace the former one of 14 March 1947. The present agreement came into effect on 1 May 1948, and will be valid for one year. France is to export mainly wine, medicinal plants, chemicals, textiles, glass and electrical equipment; Finland will supply chiefly matches, pitprops and wood products, and paper.

\* \*

A series of economic and financial agreements were signed by **France** and **Poland** on 19 March 1948. A protocol modifies the agreement con-



cluded between the two countries on 21 August 1947, relative to the exchange of goods, the amount of which was doubled. According to the supplementary list A, France will export to Poland 200 tons of worsted, unexposed films (10 million francs), gelatine for photographic use, photographic paper and sundry products to the value of 150 million francs. Poland will deliver to France (supplementary list B) sugar (2,500 t.), chicory roots (3,000 t.), mutton, sausages, jute cloth (1 million metres), linen (200,000 m.), different kinds of paper (500 t.), household articles of enamelled iron (60 million francs worth), wall-tiles (20,000 m<sup>2</sup>), intermediary products for manufacturing dyes, etc. Poland will supply over a period of 5 years, from 1948 to 1952, approximately 4.5 million tons of coal. In exchange for this coal, France will deliver to Poland automobile material and equipment.

\* \* \*

A new trade agreement for the period of one year was signed between **France and Portugal** in Paris on 24 May 1948. The agreement which applies also to the territories of the French Union and to the Portuguese colonies provides for an exchange of commodities to the value of 14,000 million French francs in contradistinction to 5,000 million in 1947. France is to export mainly phosphates (200,000 tons), iron and steel, motor cars and trucks, machinery, chemical and pharmaceutical products, textiles, perfumes, etc. The participation of France in carrying out certain public works in Portugal is also foreseen. Portugal on the other hand will especially export pyrite (400,000 tons), cork, wine, tinned fish, olive oil, etc.

\* \* \*

A trade agreement was signed between **France and Spain** on 8 May 1948. France is to export mostly railway material, machinery, including agricultural machinery, chemicals, pharmaceutical products, vaccines, sugar-beet and potato seeds, whereas Spain will export mainly fish, fruit, vegetables, medicinal plants and ore. The treaty has been concluded for one year.

\* \* \*

The Joint Committee set up according to the **French-Swedish** agreement of 31-10-47 met in Paris from 6 to 19 april. In order to develop the trade relations between the two countries, additions to lists A and B of the agreements have been decided.

French products to be exported to Sweden include: canned fish and vegetables, tinned meat, fruit tree seedlings, ornamental plants, fruits and early season produce (from North Africa), fresh

bananas, vanilla, essential oils and aromatic food products, vegetable fibre, rock phosphate, common salt, different textiles, machinery, including farm machines but not tractors, textile machines, chemicals, perfumery products, hosiery, clothing, electric and telephone material, musical instruments, etc.

Among the Swedish exports are: fresh or salt fish, tanning extract (other than furfural), sawn lumber (for French West Africa), mechanical pulp, fine paper, seamless tubes for ball-bearing, drills, compressed-air tools, textile material, harvesters, separators for the rubber industry (Indochina), steel for the manufacture of ball-bearings, etc.

\* \* \*

A financial agreement was concluded in Paris on 20 March 1948 between **France and Switzerland**, with a view to eliminating, in the exchange of goods and payments, the difficulties caused by the recent French monetary reform. On the other hand, a trade agreement in force since last autumn regulates a very intense traffic in the principal products of Swiss industry (textiles, machines, implements, watches, etc.) and also in agricultural produce and foodstuffs. The recent agreement ratifies the understanding regarding the rate of exchange to be applied to commercial transactions, releases another portion of the quotas mentioned in the treaty and settles the question of free quotation of the Swiss franc in Paris. It is hoped that these dispositions will permit renewing the exchange of goods between the two countries.

\* \* \*

An agreement governing the trade relations between **Great Britain and Spain** for the next twelve months was signed on 14 May 1948. Spain is to deliver a certain quantity of basic materials such as potassium, pyrite, iron ore, as well as olive oil, fruit and other foods. The British exportations will comprise equipment for coal mines, chemicals and electro-technical equipment. The total commodity exchange is to attain about 80 million pounds and provides also for a delivery by Great Britain to Spain of 750,000 tons of coal.

\* \* \*

A new **Hungarian-Norwegian** trade agreement was signed in May for the exchange of goods for a total value of 5 to 6 million Norwegian crowns.

Norway will chiefly export herrings, iron alloys, industrial products, aniline dyes and rayon yarn; inversely Hungary will export feather beds, tomato extract, cotton fabrics and other textile products, electrotechnical articles, fittings for wireless sets, etc.

\* \*

On 10 April 1948, an agreement was concluded in Rome between a delegation of the **Italian Government** and the Joint Export-Import Agency of the **Anglo-American Occupation Zone** in Germany to regulate trade exchanges between Italy and the aforesaid Zone. Italy will supply 10 million dollars' worth of vegetables and fruit in the course of 1948; the first immediate consignment will consist of 20,000 tons of lemons, 10,000 tons fruit pulp and 5,000 tons canned tomatoes. From June to December, Italy will export to the Bizone apples, pears, peaches, apricots, plums, grapes, potatoes, tomatoes, onions, garlic, cauliflower, French beans, carrots, beets, and oranges and lemons.

\* \*

We give the following details on the **Italo-Dutch Trade Agreement** signed in Rome on 5 March 1948 and ratified on 25 May, which we mentioned on p. 70 of No. 5 of this Bulletin. This agreement, valid for the period ending 1 March 1949, also applies to the Netherlands West Indies, Surinam and Curacao. Italy will chiefly export to the Netherlands various seeds, oranges, tangerines and lemons, citrus juices and essential oils, fruit pulps, dried fruit, cowhides for footwear, leather gloves, textiles made of artificial fibres, cotton fabrics (for the Netherlands West Indies) and woollen fabrics, socks for the Netherlands West Indies, felt hats, aniline dyes, pharmaceutical and chemical products for the Netherlands West Indies, celluloid, pumice-stone, optical and precision instruments, sundry machinery and spare parts, chiefly for the Netherlands West Indies, products of the machine and the electro-radiotechnical industry, cars, motors, etc. Inversely the Netherlands will export into Italy draught horses (2,000 head), cows and heifers (4,500 head), steers, breeding sheep, salt, smoked and dried herrings (for 2 million florins), fresh eggs, eggs for hatching and one-day chicks, seed potatoes, potato starch, flower seeds and bulbs, sugarbeet seeds, patent foods and vitaminized products, cocoa-butter, oat flakes, chocolate powder, insecticides, salted guts, essential oils and synthetic perfumes, pharmaceutical and chemical products, sundry machinery including farm machines and machinery for the food industry, Philips' products, industrial diamonds and non-ferrous metals.

\* \*

A trade agreement was signed on 20 March 1948 between **Italy** and **France** for the period 1 April 1948 to 31 March 1949. French exports to Italy will consist mainly of horses, mules, rams, ewes, boars and sows, fresh and frozen fish (to the value

of 200 million French francs), smoked herring and pickled fish (50 million francs), various canned products, cocoa nibs, dates (220 millions francs), seed potatoes (10,000 t.), different seeds, flower bulbs, medicated and other mineral waters (10 million fr.), woollen cloth (100 million fr.), rayon fabric, cotton embroidery thread, felt for paper mills and technical use, farm machines (including harvesters, binders and oenological machinery to the value of 50 million fr.), textile machines (same amount), essential oils (80 million fr.), synthetic perfumes, potassic fertilizers and superphosphates, chemical and pharmaceutical products, raw and dressed skins (oxhides from Madagascar and French West Africa, chamois leather, tanned reptile skins and common pelts, etc.). Italy will chiefly deliver industrial machinery for food and textile plants (400 million French francs), spare parts, naval supplies, electric transformers, machine-tools (200 million fr.), rice-milling equipment (150 million), dried figs (200 million fr.), oranges, tangerines and lemons (35,000 t.), fresh vegetables, fruit tree seedlings (10 million fr.), almonds and hazel-nuts, chestnuts for confectionery, rice seed, different seeds including 760 tons seed-corn, medicinal species, juniper berries, carob-beans for stockfeed, sumac in leaves and ground (2,000 t.), rush and sorghum straw (35 million fr.), various preserves, oxhide and tanned skins, raw and green hemp, hempen yarn, cotton yarn, hempen rope and fishing nets, cotton and rayon cloth, felt hats and hosiery.

\* \*

A trade protocol and a financial agreement were signed on 31 March 1948 between the **Italian Government** and the **Military Government of the French Occupation Zone in Germany**. Payments will be made in U.S. dollars. Italy will export to the French Occupation Zone in Germany fresh vegetables (20,000 qls.), vegetable seed (4,000 qls.), forage seed, vine slips (6 million), raw and semi-finished cork (4,000 qls.), cork stoppers (10 million), hemp yarn (2,000 qls.), talc (30,000 qls.) tannin (3,000 qls.), pyrites, pumice stone, sponges. The goods to be exported from the French Occupation Zone in Germany to Italy will include iron bars (30,000 tons), dyes (300,000 dollars), solvents (50,000 dollars), kaolin and refractory clay, sawn resinous lumber (50,000 m<sup>3</sup>), needles for hosiery machines (1.5 million), farm machines (100,000 dollars), watch-making parts, etc.

\* \*

The trade agreement between **Italy** and **Poland** of 27 December 1947 was supplemented by special agreements signed in Warsaw on 17 April 1948, for the execution of the exchange program proposed in December last year. Italy will export to Poland, for a value of 15 million dollars, products



which will consist mainly of tanning extracts (1,000 to 2,000 tons), sumac (100 tons), machine-tools (1 to 2 million dollars), industrial machinery and equipment (650,000 to 150,000 dollars), technical articles for the textile industry (500,000 dollars), raw silk (200,000 to 250,000 dollars), lemons (3,000 tons), sulphur (1,000 tons), tobacco. Poland, on the other hand, will supply Italy with eggs (10 to 24 million), sawn resinous lumber (10,000 m<sup>3</sup>), cast iron (2,000 tons), steel ingots (5,000 tons) and other metallurgical products. By virtue of a special agreement, Poland will furnish Italy with 750,000 tons of coal at a slightly lower price than that of American coal. Poland will provide the necessary transport for 100,000 tons.

\* \*

A trade and financial agreement signed by the **Netherlands and Argentina** in Buenos Aires on 18 March 1948, regulates trade relations between the two countries for a period of five years. According to the terms of this agreement, the two countries will open a mutual credit of 110 million pesos. The Netherlands will deliver various industrial products to the Argentine Republic including: machinery, harbour equipment, textiles and chemical products. Overseas Netherlands territories, included in the agreement, will supply tin and rubber. Argentina will deliver to the Netherlands cereals (450,000 t.), casein (800 t.), quebracho extract (7,800 t.), skins and leathers (12,000 t.), wool (4,800 t.), linseed oil (20,000 t.), sunflowerseed oil (5,000 t.), sorghum and millet (50,000 t.), talow (2,000 t.). For the duration of the agreement, the Netherlands will build, for Argentina and to a value of 325 million pesos, ships (3 for carrying emigrants and 4 tankers) and dredging equipment.

\* \*

The **Netherlands and Finland** signed a trade agreement on 10 June 1948. According to this agreement, Finland will deliver chiefly different kinds of lumber, pasteboard and paper, while the Netherlands will supply Finland with textile goods (wool, cotton, artificial silk), leather goods, lubricants, linseed oil, sisal, chemicals, potato starch, salt, glucose, anchors and chains, barbed wire, central heating equipment, seed, horticultural products, butter and herrings. By this agreement, which will be effective for one year, goods to the value of some 75 million florins will be exchanged.

\* \*

In accordance with the trade agreements with the **Netherlands**, the **Icelandic** Government notified in February the goods and commodities it desired to import during 1948. These imports cover an f.o.b. total of 30 million Icelandic crowns

(12 million florins), payable in pounds sterling. The main items are: textiles and manufactured goods (6 million crowns), electric material and fittings (2.7 million crowns), wireless sets and equipment (1 million crowns), tobacco (1 million crowns), foodstuffs (1.5 million crowns) potato fecula, vegetables, potatoes, onions, jams, coffee, cocoa, raw material for chocolate-making, spices, glucose, footwear, linoleum, plywood, fish fillets, paper, leather, soap and toilet articles. The Icelandic Import Board has granted licences for some of the goods listed above.

\* \*

At the beginning of April, a trade agreement was signed in Oslo by the **Netherlands and Norway** for the exchange of goods to the value of 55 million florins during the year 1948. The Netherlands will export flower bulbs, copra, superphosphates, glycerin, salt, chemical and pharmaceutical products, tin, textile products, iron and steel products, electro-technical and optical articles, ships. In exchange, Norway will deliver fish, medicinal cod-liver oil, nitrogenous fertilizers, unhewn timber, sawn lumber, cellulose, pasteboard and paper, feldspar, iron alloys, linen and artificial silk yarn.

\* \*

A recent trade and financial agreement was concluded in the Hague on 24 April 1948 by the **Netherlands and Switzerland** for the period 1 July 1948 to 30 June 1949. Goods to the value of 215 million Swiss francs (30 million more than with the previous agreement of 24 December 1946) will be exchanged. The Netherlands and her overseas territories are to export industrial products, coke, raw iron, agricultural produce (chiefly seeds and eggs) and colonial products (rubber, tin, copra, tobacco, palm oil, spices). Switzerland will deliver machinery, dyes, watches and textile products (to the value of 25 million francs) and also luxury articles such as embroidery work and silk ribbon.

\* \*

A recent trade agreement was reached between the **Netherlands and Yugoslavia** on 28 February 1948 at the Hague, with retrospective effect from 1 February 1948. The agreement, valid for three years, provides for the exchange of goods to the total value of 100 million florins. The goods to be delivered will be decided year by year. According to this agreement, Yugoslavia will supply in the main: maize (50,000 t.), lumber, sawn lumber, wood for paper manufacture, sleepers (20 million florins' worth), hops, tobacco, beans, soybeans, caustic soda, lead, copper and mercury. For its part, the Netherlands will supply seed potatoes (10,000 t.), flax seed for sowing 60,000 ha, as cal-

culated in the Yugoslav five-year plan, large quantities of vegetable seed, breeding cattle, hatching eggs, breeding poultry, flower bulbs (to the value of 50,000 florins), rayon yarn and fibre, aniline dyes, crude iron, tin, spices, rubber, essential oils, and also mechanical, industrial and domestic products.

\* \* \*

Another trade agreement was concluded between **Poland** and **Finland** at Warsaw in February 1948. According to the terms of this agreement, Poland will export to Finland 1 million tons of coal, zinc, iron-ore, wrought iron and other metal products, electric motors chemical products, to the value of 15 million dollars. For her part, Finland will supply Poland with fibre (9,000 t.), waste sheets (4,000 t.), copper and copper products, insulating plates, asbestos, drying-oils and various paper-milling products. The value of the Polish exports will be appreciably higher than that of the Finnish quotas. The difference will be paid to Poland in foreign currency.

\* \* \*

On 24 March 1948 a trade agreement was signed between **Poland** and the **Netherlands** for the period terminating 31 December 1948. This agreement, which replaces that of 18 December 1946, provides for exchanges to the value of approximately 25 million florins, compared with the amount of 15 million florins in 1947. The Netherlands will supply Poland mainly with rubber (750 tons), tin (600 t.), Philips' goods (X-ray tubes) different electric machines and apparatus, synthetic oils, paints, lacquers and varnishes, lubricants, machine oils and grease, various chemical products, salt herring, vegetable seeds, flower bulbs and arboricultural products. In exchange, Poland will deliver to the Netherlands bar-iron, sheet-metal, rails, steel wire, cast-iron boilers, nails, horseshoes different machines and tools for farming and paper-milling, electric fittings, finished metal goods, sodium salt and other chemical products, glass, beer bottles (2 million), sawn resinous lumber, cotton goods, artificial silk and linen cloth.

\* \* \*

Within the framework of the five-year agreement signed by **Poland** and **Yugoslavia** on 24 May 1947, a new trade and financial agreement was concluded between the two countries on 12 April, for the period up to 31 December 1948. According to this agreement, which provides for the exchange of goods for a value of 22 million dollars by each country, Yugoslavia will export copper, lead, zinc, pewter, hides, timber, tobacco, wine, olive-oil, hops and hemp, whereas Poland will export iron and steel products, coal, electro-technical materials, narrow-gauge line locomotive engines and textiles.

\* \* \*

The Joint Committee, set up according to the trade agreement concluded on 7 January 1946 between **Portugal** and the **Belgian-Luxembourg Economic Union**, met in Lisbon from 1 to 19 March 1948 and drew up quota lists of the goods to be exchanged between the two countries during the period lasting from 9 April 1948 to 8 April 1949. Portugal will mainly export to the **Belgium-Luxembourg Economic Union** fresh fruit (pineapples, melons, olives, chillies), dried fruits (almonds, figs, carob-beans, chestnuts, tomato extract, coffee), tinned fish (18,000 t. sardines in oil or sauce), wines (port, madeira), plant and animal products such as sisal (9,000 t.), colophony and resin (6,000 t.), turpentine, industrial fish oils, whale and sperm-whale oil, cassava starch, etc., mineral and chemical products (chiefly pyrites, kaolin and sulphur), serums and vaccines, eucalyptus wood pulp, cork (4,500 t.), stoppers and sundry products. The **Belgian-Luxembourg Economic Union** will deliver to Portugal draught and breeding horses, hatching eggs, medicinal plants, aliphatic alcohols, cements, various mineral products, sheep and goat-skins, other skins and leathers, rubber, metal goods, cables.

\* \* \*

A provisional trade agreement was concluded between **Rumania** and the **Netherlands** in Bucharest on 16 February 1948. According to the terms of this agreement, Rumania will supply the Netherlands mainly with maize (30,000 t.) and oilcakes (10,000 t.), while the Netherlands will deliver to Rumania machinery, engines, parts for the electric industry, rubber and also chemical and pharmaceutical products. Payments will be made in U.S. dollars.

\* \* \*

A trade and financial agreement was reached in Berlin on 19 April 1948 between **Sweden** and the **Anglo-American Occupation Zone in Germany** (Bizonia) for the duration of the current year. The agreement will come into effect after ratification by the Swedish Parliament. Exports will amount to approximately 190 million crowns, while German deliveries will be to the value of 150 million crowns. The Swedish quotas include iron-ore (75,000 t.), wood pulp, sawn lumber, planks, pasteboard, sleepers, wooden prefabricated houses and other wood products to a value of 25 million crowns, and paper, paper products, quality steels, etc. German deliveries will consist mainly of coke (60,000 t.), cast-iron and rolled metal products, machinery (30 million crowns' worth), apparatus and implements, chemical and pharmaceutical products to the value of 15 million, textiles for 20 million crowns.



On 12 April 1948, a trade agreement was signed, at Stockholm, between **Sweden** and **Austria** for the period ending 11 April 1949.

The agreement provides for the exchange of goods to the value of 16 million Swedish crowns by each country. Austrian exports include magnesium carbonate, crude iron, tractors, textiles and ready-made articles. Sweden will chiefly export iron and steel products, machinery, chemicals and mineral products, paper, paper waste and fish.

\* \*

The trade agreement between **Sweden** and **Finland** of 29 March 1947 was renewed on 21 February 1948 in Stockholm. The exchange of goods between the two countries will be considerably increased; Swedish exports are expected to reach a value of about 53 million crowns and imports from Finland, 59 million crowns. Swedish exports will mainly include iron ore, iron, steel, steel products, ball-bearings, machines, telephone and telegraphic equipment, chemical products, certain food stuffs. Finland will deliver to Sweden cast-iron, semi-finished copper, goods, sawn and planed lumber, paper, textiles, cheeses and other foodstuffs.

\* \*

A trade and financial agreement was signed on 22 April 1948 in Warsaw by **Sweden** and **Poland** in substitution of the agreement of 18 March 1947. The new agreement is valid from 1 May 1948 to 30 April 1949, and provides for a considerable increase in the goods exchanged between the two countries. Poland will export goods to the value of 205 million crowns, while the Swedish exports will amount to 145 million crowns. According to the terms of the agreement, Poland will deliver 4 million tons of coal and coke (nearly 200 million crowns), salt, sugar, malt, soda, zinc, textiles (mainly cotton yarn and cloth), textile machinery, cables, material for electric plants, cast-iron, metal goods. Sweden will supply Poland with horses, fish, granite, iron-ore, pyrite, chemical and pharmaceutical products, tanning extracts, pulp and paper waste, iron and steel, chilled metals and various metal products.

\* \*

In Stockholm, a new trade agreement was signed between **Sweden** and **Yugoslavia** covering the period until 15 April, 1949. Sweden will export mainly pharmaceutical and chemical products, paper and card-board, iron, steel, electro-technical equipment and machinery, whereas Yugoslavia is to supply maize, oil-cakes, copper and lead, soda, bauxite chrome ore, glycerin, etc. The Swedish deliveries will amount to 15 million Swedish crowns, whereas the Yugoslav exportation is to attain 42 million crowns, the balance being used

in payment for Swedish machinery and as compensation for Swedish proprietors of nationalized enterprises in Yugoslavia.

\* \*

A trade and financial agreement between **Switzerland** and **Sweden** was concluded in Berne on 13 April 1948. The two agreements which came into force on 1 May, will be valid up to 30 April 1950. The list of exports includes chemical and pharmaceutical products, aniline dyes, textiles, machines, aluminium ware and semi-finished copper goods, electric equipment and fittings, instruments, registers, watches and agricultural products. Sweden will deliver chiefly iron and steel, ball-bearings, various types of paper, pasteboard, packing material, wood pulp, cellulose, drying-oils, raw and tanned hides, leather for footwear, foodstuffs such as tinned fish and poultry, eggs and condensed soups.

\* \*

It is announced in the British 'Board of Trade Journal', in the issue of 8 May 1948, that talks between the Government of the **United Kingdom** and a **Hungarian** trade delegation have now reached a successful conclusion.

Arrangements have been made for the supply to the United Kingdom of increasing quantities of Hungarian foodstuffs, principally eggs, bacon and poultry, and for the importation by the United Kingdom of certain Hungarian raw materials and industrial goods.

These arrangements will enable Hungary to increase purchases of raw materials and manufactured goods from the United Kingdom and the sterling area.

## F I S H E R I E S



### Organization of the saltfish trade

One of the most important branches of fisheries is the production and trade in salt fish. Exporters of salted fish from a number of countries met in London in 1939 to discuss possible forms of international cooperation between exporters: but the establishment of such cooperation was prevented by the outbreak of the second world war.

After the war, negotiations were resumed at Bergen, Norway, in September 1946, by the representatives of the saltfish trade of eight countries; Canada, Denmark, Faeroe Islands, France, Great Britain, Iceland, Newfoundland and Norway. The meeting was also attended by representatives from the same countries, and by observers from the FAO Fisheries Division. The situation of the saltfish trade was discussed and recommendations for international cooperation were agreed on.

The third meeting of the saltfish exporters was held in London on 13 April of this year. It was decided to propose the formation of an international association of exporters of salted fish (including Klippfish) which would serve as an instrument of collaboration between its members and to promote the development of the saltfish industry in the mutual interests of producers and consumers.

A constitutional meeting of the Association will be convened this autumn.

## Fishing regulations for the North Sea

The "Norwegian Cannery's Export Journal" in its issue of June 1948 reports that the International Conference on Fisheries in the North Sea published recently a recommendation by the Permanent Consultative Committee of the Conference. This recommendation calls - among other things - for an introduction by Belgium and France of a special system of licences for the construction of fishing vessels. The Committee recommends further that the Netherlands fix their landings quantitatively, Sweden establish their meshes of netting at 90 millimetres and Denmark at 100 millimetres. Great Britain is not to increase its fishing fleet in the North Sea over 85 per cent of its pre-war level. The Committee also recommends that an International Commission should be constituted for submitting annual reports on the fishing in the North Sea with a view to preserving the fish population. France, Belgium, Poland, Norway, the Netherlands, Iceland, Denmark and Eire have not yet ratified these recommendations.

## Interprofessional French Board for fresh-water fish imports

By a Decree of 20 February 1948, the Minister of Agriculture has set up an interprofessional advisory Board for the importation of fresh-water fish and roes, for the purpose of drafting the terms and conditions relative to the distribution of import quotas. This Board consists of the Director of Economic Affairs (Chairman), the Director Gen-

eral of Woods and Forests, the Chairman of the Fish and Salmon Breeders' Association of France, the Chairman of the Syndical Chamber of French Food Importers, the Chairman of the National Fish Merchants Union and a representative of the departmental Federations of Fishery Associations. (*Taken from the 'Moniteur officiel du Commerce et de l'Industrie', No. 1288, 25 March 1948*).

\* \* \*

Before the war, Italian fishery annually contributed 1,660,000 quintals of fresh fish to the food supplies of the country. This pre-war level has not yet been regained. The fishing industry in Italy employs some 125,000 workers, and a large number are engaged in organization and distribution work. These data were furnished by Mr F. Avezzano, Chairman of the National Association of Fishery Owners and Industrialists, at the time of a report made before the General Assembly of the Association.

## Developments in herring the industry, Iceland

From the beginning of the Icelandic winter herring season in November to the end of December 1947, over 80,000 tons of herring had been caught. As most of this fish is being processed, about 10,000 tons of herring oil should be produced, which is about half of the summer production.

As a partial solution to processing the fish caught off the west coast, the Government was recently authorized to buy a ship and alter it, for the processing of 1,350 tons of herring a day. The Government will also construct herring-oil tanks, storehouses, and other installations on Faxa Bay (situated off the southwest coast). It is estimated that these operations will cost approximately 14,000,000 crowns (\$ 2,150,000).

Contracts for the sale of 3,000 tons of herring fish meal to Denmark and 5,000 tons to the United States were concluded early this year. The latter deal is of special importance, as it will provide Iceland with badly needed dollar exchange at a time when dollar reserves have reached an all-time low and will furnish west-bound cargo for vessels sailing for New York. Instructions were issued at the beginning of 1948 to exporters of cod-liver oil, forbidding them to sell for any currency other than dollars. This means in effect that the United States may receive most of the 1948 production (estimated at 8,000 to 9,000 tons). (*Foreign Commerce Weekly, February 28, 1948*).



\* \* \*

The Marine Laboratory of the University of Miami in USA is studying and collecting plankton with a view to examining its potentialities as a source of human and animal food, says an item in the Fishing Gazette of February 1948. Plankton is the name for the drifting population of the sea furnishing food for the larger forms of fish life. Plankton collected off the Florida Coast is stated to be both rich in proteins and a good source of vitamins.

## FORESTRY



### International Poplar Commission

The 2nd Meeting of the International Poplar Commission was held in Italy from 20 to 28 April, 1948, and was attended by delegates from Belgium, France, Italy, the Netherlands, Sweden, Switzerland, Syria and the United Kingdom.

The three plenary meetings took place in Milan, Venice and Casale Monferrato respectively.

The President of the Commission, M. Guinier, Honorary Director of the National School of Woods and Forests at Nancy (France), and the Vice-President, Doctor Houtzagers, Professor at the College of Agriculture, Wageningen (Netherlands), who had been elected at the first meeting in Paris in 1947, were unanimously retained for a further term of three years, and the Secretariat of the Commission was attached to the Forestry Division of FAO at Geneva.

The Commission visited the Po Valley and inspected numerous poplar plantations as well as natural stands, and also pulp, paper compressed boards and plywood factories.

\* \* \*

The Timber Committee of FAO and ECE, established at Geneva, is preparing the first session of the European forestry and Forest Products Commission of FAO, which will be held at Geneva in June in order to co-ordinate forest legislation

and management among all European countries so as to carry out the recommendations drafted by the Mariánské Lázně Conference and adopted by the Annual Conference of FAO in 1947. M. Bernard Dufay (France) has been appointed chairman of the European Forestry and Forest Products Commission which will work under the same board and with the same secretariat as the European Timber Committee.

The Timber Division in Geneva will also organize the World Forestry Congress which will take place in Finland during the summer of 1949.

## German timber production

The Anglo-American Bizonal Control Office has approved timber cutting plans for 1948 in the Bizone, says a statement in the 'Public Ledger' of 24 March. These plans will provide for the production of 30 million cubic metres of timber, 2,500,000 cubic metres of it for export.

## VITICULTURE



### Preventive treatment of roncet

Mr E.M. Bastisse, attached to the Soil Laboratory of the French National Centre for Agricultural Research, has already investigated chlorosis, mildew and scab (1) as well as the influence of certain metallosilicic colloidal complexes as metallic growth factors. He has now studied the action of these complexes on vines affected by roncet (2).

He took into consideration the different mineral or organic elements necessary for the production of plant material and which, under natural conditions, assure a satisfactory physiological state. He reviewed the present knowledge on roncet of the vine — "phenomenon of inhibition which affects the vine and which is manifested by delayed checked, scanty and stunted vegetation, rendering

(1) See: BASTISSE, *Annales Agron.*, 1944, 45, 46, 47 and Reports of the *Acad. des Sc.*, 1947.

(2) See: BASTISSE, *Revue Horticole*, Nouvelle Série XXXX, 1947, No. 22.

the plant sterile and causing it to die off within a more or less short period". The numerous possible causes of the disorder were examined and the means of control of which "none have proved effective to date", whether phylogenetic, phytosanitary, phytopharmaceutic, biological or chemical.

Noting the diversity of the possible causes and recognizing that metals may have a specific effect on the different pathogenic agents, parasitic or non-parasitic, either by microbicidal action or physical, physicochemical or chemical antibodies, Mr Bastisse employed these metals and their oxides in the form of electronegative metallic colloidal complexes. He prepared 26 products, each containing only one metal oxide, and utilized them in powder form in the present experiments, although this does not necessarily mean that another form will not ultimately be used. His experiment notations refer to 657 vines treated and an equal number of control plants. They have been classified as follows:

(A) Inactive or inert substances: titanium, tellurium, nickel, cobalt, tungsten, molybdenum, 3 and 5 valency vanadium. Not toxic for the vine, but the disease developed to the same extent on both the treated and control plants. In course of time the notations showed a slow and continued reduction of 20 to 30 per cent. compared with the initial notations.

(B) Active substance — with neutralizing effect: 3 and 5 arsenic, bismuth, 2 and 4-tin, cadmium, chromium, antimony. These check the spread of the disease by anti-pathogenic action. The 1946 experiment notations for the treated plants were, on an average, perceptibly the same as those observed initially, while for the control plants they became lower.

A distinct ameliorating effect was obtained with the treatment, though as the experiment notations indicate, slight and varying in intensity according to treatment conditions; an average of 10 to 20 per cent. over the initial notations.

As regards the curative efficacy of the latter products, it should be noted that (a) late treatments (June) are less effective than the early (April); (b) the more severely the vine was attacked at the beginning, the less marked the improvement; (c) the positive effects do not always show the first year and the more severely attacked the vine, the longer the time required. These active ameliorating substances may be grouped as *products with a predominant physiological action*: 2 and 3-iron, uranium, lanthanum, manganese, which fall into the category of metal growth factors and also act on the initial but secondary causes of roset, such as deficiency in oligo-elements; and *products with dominant anti-pathogenic action*: mercury, copper, zinc, lead. These are among the oligo-elements essential for complete mineral cultivation media, and are particularly known as

parasiticides of plant micro-organisms; commonly used against fungous diseases, mildews, etc. Some viruses can also be controlled by metals of this group. They may also be supposed to act as antibodies against non-parasitic pathogens, toxins or products having toxic action.

The perfecting of the ultimate product will entail a considerable amount of work carried out under rational conditions.

Mr Bastisse concluded that it seemed possible, therefore, to start an effective control of roset, and that it was necessary to: effect careful phylogenetic selection in order to introduce into the vineyards only initially and thoroughly healthy and if possible resistant plants; take phytosanitary precautions at the different stages of development, grafting, planting in the nursery and transplanting of vine-stocks; control animal parasites; utilize, for phytosanitary purposes, certain metals in pseudosolutions or powders, prepared until now in the form of electronegative metallosilicic colloidal complexes, according to vegetative stage; define associations, grouping several of the so called 'active and improving' metals with a view to increasing the curative efficacy; continue experiments to verify the results already obtained, and ascertain whether other *protective anions would stimulate the rôle of silica* as also the use of other mineral or organic products. Lastly, investigations should be carried out on vines in the vineyard in order to determine the specific action of possibly competing products such as *organic growth promoting substances* (hormones, auxins or phytohormones). It remains to be seen what advantage may eventually be drawn from the experimental results obtained.

## PLANT DISEASES AND INSECT PESTS



The control of potato viroses in Belgium

(Sent by the Belgian FAO National Committee).

It is universally known that the more or less serious disorders which compel the grower to renew his seed potatoes somewhat frequently, are given the collective name of 'degeneration diseases'.



In reality, these diseases are attributable to filterable pathogens, viruses.

Combating the action of these viruses, therefore, is a problem of primary importance.

Under the impetus of the Institute for the Promotion of Scientific Research in industry and agriculture (IRSIA), the Potato Research Fund has undertaken an exhaustive study of the causal pathogenic agents. Three main objectives have been set:

(1) Improved measures to curtail the damage caused each year by viroses.

(2) Finding and creating of new potato varieties adapted to the crop conditions of Belgium.

(3) Supplying breeders with pedigree seed potatoes to ensure maximum yields.

Two sections of the Potato Research Fund are working together on this problem:

(1) The Phytopathology Section is carrying out the study and description of the symptoms of the different causal viruses: leaf roll virus, y-virus, etc. 26 viruses capable of attacking the potato have been listed in Belgium. The behaviour of insect vectors of viroses (aphids) is also being studied.

(2) The Genetics Section is breeding new varieties adapted to Belgian crop conditions. Three thousand crossings have been studied from many aspects (resistance to cold, and to mildew, immunity to viroses, etc.). The Section is also investigating and breeding 3,122 1st year hybrids, 180 2nd year and 4 5th year.

At the same time the Section is breeding pedigree strains obtained from the best potato regions of the country (343 lines were bred in 1947).

## Forage crops

Very severe damage was caused this year in Italy to clover and lucern fields by a small insect not more than 2 ½ mm. in length, *Sminthurus viridis*, which belongs to the Collembola order (fam. Sminthuridae). Attention is called to this subject in an article by I. Godino in the 'Giornale di Agricoltura' (Rome, 2 May).

The danger of this insect is that it greatly diminishes the feed value of the forage which is a question of primary importance today. In effect, this insect feeds exclusively on the leaf tissue between the two epiderms. It perforates the cuticle and pushes its head through the resultant small opening to devour the parenchyma causing elongated erosion between the main nervures.

This springtail lays its eggs on the ground in oöthecae containing at least 60 eggs which after the winter hatch out with the first warm spring weather. The insect reaches the adult stage without undergoing metamorphosis; in turn it lays eggs and the second generation hatches out in 10 days; this

continues up to 5 or 6 generations in the course of the year, with the result that this pest spreads rapidly.

To date, control consisted in cutting the dead forage as close to the ground as possible, so as to obtain very dry conditions to which the insect is very susceptible. This method, however, has no effect in moist soils. Experiments with DDT gave no positive results, even after 48 hours. On the other hand, dusting with products containing 8 per cent. hexachlorocyclohexane completely destroyed the parasites after 24 hours.

## The acaricide properties of terpene chloro-derivates

In a paper presented before the meeting of the Science Academy of Paris on 8 March, M. J. Guilhon described the acaricide properties of terpene chloro-derivates. He reported that in his experiments the mites were maintained constantly *in vitro* at temperatures of 30-35°C. in contact with terpene chloro-derivates: bornyl chloride and methylisopropyl-1.8 dichlorocyclohexane. The mites were subsequently removed from toxic contact and thoroughly cleansed of any particles which might continue to exert an injurious action, and their immobility was checked several times in 24 hours before concluding actual death, so difficult to distinguish from apparent death with these arthropods. Under these experimental conditions, the psoroptes, on an average, resisted an hour and a half in bornyl chloride and 30 minutes in methylisopropyl-1.8 dichlorocyclohexane. On comparing these figures with those obtained under the same conditions with hexachlorocyclohexane and dichlorodiphenyltrichloromethylmethane (DDT), it may be inferred that the acaricide value of the two terpene chloro-derivates studied ranges between that of HCH, which is at least twice as active as methylisopropyl-1.8 dichlorocyclohexane and six times more effective than bornyl chloride, and that of DDT which is much less toxic to mites than the two chloro-derivates of the terpene series.

## Zinc deficiency in fruit trees

Cases of zinc deficiency are fairly rare in Europe and were first observed in 1940. Some cases are described by D. Mulder in a note presented by Mr. Javillier to the Academy of Agriculture of France (11/2/1948). The first case cited on apple-trees in Hungary was cured by the application of zinc sulphate. In 1943, another case was reported in the Netherlands; there were indications of its occurrence in Switzerland and also in Denmark where

the Phytopathological Service attributed the disorder to the abundance of phosphates. The following symptoms were observed by the author of this note: haphazardly scattered yellow spots on fully developed leaves; growing leaves yellow in colour but with the main nervures remaining green; curling of the leaf edge; change in the form of the leaf, becoming narrower and 3 to 5 times smaller; internodal spaces very narrow at the end of the branch causing rosette formation; delay in complete development at the end of branch and in the formation of the terminal bud; inadequate wood formation leaving the branches too flexible as in 'rubbery wood'; development of numerous shoots at the end of the branches during the second year. The fruits do not present any special symptoms, but remain small. The diseased branches may be interspersed with the healthy limbs on the same tree, and the disease may vary in severity.

During the winter of 1947 the author carried out experiments using spray solutions of 5 per cent. zinc sulphate and 1.5 per cent. zinc sulphate plus 0.75 per cent. lime, which gave good results. No exact information is yet available as to the soil conditions which cause this deficiency, although it has been observed that it might be due to excess phosphates.

## HORTICULTURE



### Future prospects for trade in horticultural products

(We give below an extract of the Report of the Meeting of Horticultural Experts convened by FAO in Rome, March 17-19, 1948, which may be of interest to our readers).

Looking somewhat further ahead than 1948 it is important to form a judgement as to whether the present influences are likely to continue. The first step would be to obtain some definite information regarding programmes in major importing countries, notably Germany and the United Kingdom. It is known that production in these countries has increased but foreign trade intentions have not been announced.

The future of the German market is particular uncertain for the exporting countries, and it is very

important for the present problems as well as for their future planning if a definite long-term program for the development of German horticultural production and imports could be formulated. At the moment no long-term plans have been published, but it seems very likely that Germany in the future will attempt to develop a higher degree of self-sufficiency than in the prewar years, partly as a consequence of scarcity of foreign currencies. With regard to this a parallel may be drawn to the development in the United Kingdom.

At present, however, it is natural to concentrate on developments in the near future and here it is obvious that Germany needs considerable supplies from foreign countries as a supplement to its own production. This import, on the other hand, is dependent on Germany's ability to make foreign currency available. As is known, it has been the opinion of the authorities in Bizonia that the limited amounts of foreign currency for import provided by appropriations from the US and the UK should not be spent on imports which did not greatly increase the calorie intake. It is likely, however, that imports of vegetables at least in Bizonia will be possible in the future as Germany increases its industrial production and will be able to offer such products which cannot be sold against hard currency, in exchange for other goods like vegetables.

A limiting factor in the expansion of Germany's own production of vegetables is the shortage of seeds. Even the maintenance of the present level of production is dependent upon a considerable import of seeds which still are in scarce supply.

Further development of the indigenous production of horticultural products is an important part of the UK's planning of its agricultural development for the next four years. The Government will provide for a further expansion of *vegetables* by stepping up average yields per acre. It emphasizes the importance of securing larger supplies of early vegetables and plans a substantial expansion of the acreage of land under frames. Tomatoes are considered as the principal glasshouse crop. Tomato production increased from 60,000 tons before the war to an average of 104,000 tons during the war. The glasshouse industry should aim at producing about 125,000 tons.

Moreover, after the decline since 1939, the Government aims once more to increase soft *fruit* crops; steps are being taken to improve the supply and quality of spring stocks, in order to raise the acreage to at least 60,000 acres in 1951. (62,500 prewar). The greater proportion of this increase will consist of strawberries.

For orchard fruits, the acreage of good quality dessert apples should be increased by 10,000 acres during the four-year period and of dessert pears by 5,000 acres. At the same time there should be a considerable improvement in the quality of all home-produced fruits.



In the newly published report from the committee appointed to review the working of the Agricultural Marketing Acts it has been explained how new marketing schemes for apples and tomatoes have been prepared by the producers with the support of the National Farmers' Union. The Committee recommended this development to establish disciplined co-operation of producers. For horticulture in general it further recommended supply planning, control over the distributive system to prevent gluts as well as shortages and development of processing and storage facilities. It has been emphasized that the British producers are able to satisfy a much higher percentage of the demand than hitherto, for example, 90 percent for plums, 40 percent for apples, 15 percent for table pears, 80 percent for lettuce and 50 percent for tomatoes. An expansion of the marketing regulations for horticulture will probably stimulate further expansion of production and also affect the exporting countries in Europe.

Generally, the demand for vegetables as well as fruit will probably remain higher than in the prewar years, particularly if the European countries will be able to raise their productivity and keep employment at a high and stable level. The advanced knowledge of the nutritional value of different kinds of foods may further sustain the increased demand. Considering the total consumption, the increase in population, which on an average may be estimated at about 10 percent since prewar, will in itself necessitate an expansion of production.

Assuming that Europe during the next few years will recover from the present state of economic disorganization, it is likely that European trade in general will increase and marketing of exportable surpluses of fruit and vegetables should be facilitated when the potential importers can offer other commodities in exchange. A general reduction of tariffs also for vegetables and fruit such as the UK has agreed upon during the recent trade negotiations at the ITO Conference in Geneva may open up possibilities for trade expansion, but at least during the next few years the quantitative import restrictions will probably remain more important than tariffs.

As far as imports are concerned the policy of certain countries to refuse imports if prices are below a fixed minimum may aggravate the difficulties of the exporting countries and cause a real glut in prices in the free market. Another important factor is the increasing influence of trade associations of horticultural producers which is not always counterbalanced by consideration of nutritional and consumer interests.

So far as future plans for development of horticulture have been announced there is a general trend to expand horticultural production, very often for social reasons. In countries where the land, owing to the density of population, has to be divided into

small allotments, production of high intensity is necessary to provide sufficient income for the producer and it is difficult to utilize the land more intensively than in horticulture.

Further expansion of production may be possible in proportion to the development of the processing industries which can only be established on a regular supply of fruit and vegetables during the various seasons. The new technique of quick-freezing may open new possibilities for marketing fresh fruit and vegetables over great distances.

From the available data it is not possible to judge whether the production programmes are in harmony with the possibilities for marketing. Further analysis of this question will be an important part of continued studies on the subject.

## RURAL WELFARE



The  
'Latifondo'  
in South Italy

(by Francesco ACQUAVIVA, Professor at the Faculty of Agriculture, Portici, University of Naples).

The history of the agricultural economy policy conducted by the Italian Government in South Italy contains countless examples of administrative and legislative measures taken with a view to solving the problems caused through the latifundia or large estate system and public lands which have some similarity with the former.

The classic method followed to date to remedy the latifundia situation has been the splitting up of these large estates. It was hoped that the large estate once split up into holdings assigned to the peasant, would be better cultivated and that the lot of the peasant would be improved. Merely splitting up a large estate, however, was not sufficient to change the established economic and social system. In effect, it cannot be changed if the existing land regime does not allow, from the economic standpoint, organizing production according to more up-to-date methods. In this case, with small or medium holdings there is always a 'latifondo': the peasant 'latifondo'. A legal and individual division of the land has been obtained, but the level of

production and the economic standing of the farmer have not been improved. On the one hand there is the social and political aspect of the problem, and, on the other, the economic side, and the two should not be confused.

The first step is to modify the land regime so as to attain an environment which will permit modern organization of production. After this, reasoning broadly, this modern organization could be realized in large, medium or small holdings, capitalistic or peasant farms, employing individual, family or cooperative labour and working with or without the assistance of 'cooperative centres' for technical means.

The smallholding system, particularly when the land is cultivated direct by the proprietor, an emphyteuta (kind of long term tenant) or a farmer, will be successful when employed under the conditions most suitable to it from the economic point of view.

On the other hand, under conditions favourable for the medium or large farm, preference should be given to the purely capitalistic enterprise or to a capitalistic enterprise under personal management. In opposition to standardization, this adaptation to an economic and technical environment, of the type of farm to be established, will be a guarantee, also from the national standpoint, of the utility and stability of these changes.

The first and chief remedy, therefore, is to change the land regime, but, without any other measures, it requires much time and considerable capital.

The second possibility is intensification of farming where this process has already advanced to an appreciable degree. Fortunately this is now taking place in some areas in the south of Italy, which sometimes resemble the 'latifondo'. The absorption of fresh labour keeps pace with the investing of capital in proportion to the amount of this capital. These investments are possible through the saving obtained with progressive agriculture.

Where agriculture is still more or less on a low level and stationary, however, there is little saving; and this is a serious matter. This is generally the case in the very large estates. The low income checks all progress, even slow, in organized production. Nevertheless, if even slow progress is to be obtained, an effort will have to be made first of all to stabilize production, as far as possible, by a fuller participation of the farm worker in the managing and operating of the farm.

Consequently :

(1) Private savings should be concentrated first on intensifying production and improving the less out of date methods of farming in order to obtain, with the least possible delay, further savings which can be invested in other improvement works and changes ;

(2) The State, for its part, should devote all available funds to the districts where complete change of the land regime has already been studied in detail, so as to assure and coordinate the activity of private individuals, and where this change can be successfully accomplished in a very few years and within the shortest period allowed by technical means, in order to raise, as well as production, the standard of living and civilization of the peasant.

A doubt, however, arises. Considering a fairly close future period, is it certain that the remedies proposed to date, and which do not go beyond the sphere of agriculture, will be sufficient to raise the standard of living, still very low, and the civilization of the peasant classes ?

The answer cannot but be in the negative, for three reasons : the continual increase in the population of Italy ; the low standard of living of the peasants, which is the cause of the annual increase in this class ; lastly, because the effects of land change and intensification in farming cannot be felt for some time despite every desire to curtail this delay. It appears, therefore, that, within the estimated length of time, agriculture alone is not sufficient to raise, to the necessary degree, the really too low standard of living of the peasants who are increasing in number, and to improve the excessively large estates and 'latifondi' in the south of Italy.

It seems that measures other than agriculture need to be found and used simultaneously, for instance, measures which could bring about the industrialization of these regions and the emigration of part of the peasant population.

Owing to the technical aspects of this problem, it is not easy to discuss the industrialization of South Italy outside the centres already more or less industrialized.

Industry tends to develop where its different branches already flourish, chiefly because the heavy outlay entailed through the absence of populous centres is avoided.

The industries for processing the produce of South Italy such as wine-making, oil-milling, cheese-making and the sugar industry, fruit preserves, etc., can and should be developed to an extent for which most people scarcely even hope. Undoubtedly a non-specialized industry necessitating the importation of raw material would find great difficulty in succeeding ; on the other hand, the heavy industries, even in connection with the international market, are to be avoided.

The resumption, on an organized basis as is possible today, of certain forms of handicrafts may also be of some value, although to a rather limited extent, in the regions where large scale industry has not yet completely eliminated handicraft activity.



There remains emigration. The pros and cons of this solution lie outside the scope of this article. In view of the circumstances prevailing in South Italy, it is a necessary means of checking the continuous lowering of the peasant's standard of living and, in certain regions, of improving it. It is well known that the peasant, confident of the outcome of his tenacious and intelligent work, wants to emigrate. This emigration should be organized on a basis worthy of independent and strong peasants, and the State should assume full responsibility.

## NEWS FROM AFRICA



### Agricultural machinery in Algeria

In 1947 Algeria received 695 tractors mostly from America of which 521 were on wheels and 175 track-laying.

This number is not much greater than Algeria received before the war and is therefore just sufficient for normal requirements of pool renewal. If farms where machines are too old are to be re-equipped, and if Moslem agriculture is to be modernized, then a far greater number will be required.

732 trucks were turned over to agriculture in 1947. Many requests for light-weight vehicles have still to be met.

The fuel crisis, which involved reducing the quantity allotted to agriculture, came at a particularly

critical moment, October, when there was ploughing to be done before sowing.

(From the data published in the 'Bulletin of General Statistics' and in the North African Agricultural Review).

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In Algeria, although the rainfall appeared to have been sufficient and well distributed, the wheat fields in general are very sparse. Earing began normally and the ears are in good shape but few in number. Under 'Chronique', the *Revue agricole de l'Afrique du Nord* (No. 1499, 23-5-1948) states: "The wheat fields should be much more dense. The cause of this defect must be found; is it not due to the poor start through wheat being sown on ground which lost its soluble nitrogen, washed out by the early heavy rains? On the other hand, some cereal-growers complain of the scanty results obtained this year with phosphate fertilizers, which do not appear to have stimulated tillering".

"Lastly, rust is spreading to an abnormal extent and smut has caused some damage to barley and oats. Fungous diseases seem to be unduly virulent this year. This is a problem which will require studying".

## Textiles in Morocco

Mr Em. Miège, in the *Revue internationale des produits coloniaux*\* gives some textile statistics which are summarized in the table below. The question has been studied from the standpoint of the importance of textile crops for Moroccan economy.

Mr Miège points out that sisal and esparto-grass grow wild or semi-wild in Morocco. Jute, on which cultivation experiments have been carried out over several years, could be grown for fibre;

\* No. 223, April 1948, p. 78.

Product	French pre-war imports (qls)	Value of pre-war imports (million francs)	Area at present cultivated in Morocco (ha.)	Harvested crop (qls)	Moroccan exports (qls)	Moroccan imports (qls)
SISAL . . . . .	300,000(1)	100	700	500-600	—	—
JUTE . . . . .	900,000	400	—	—	—	13,000
ESPARTO . . . .	—	—	2,500,000	2,500,000	400,000(2)	—
КАПОК . . . . .	15,000(3)	13	—	—	—	—

(1) Including 35-40,000 qls. from overseas possessions French West Africa and Madagascar.

(2) Average of pre-war exports shipped mainly to England.

(3) Chiefly from French West Africa.

it is sometimes utilized as a vegetable and the seeds contain approximately 13 per cent. oil. He adds that there are many other wild or cultivated textile plants as, for instance, raphia, *Musa textilis*, Moroccan kapok (*Gomphocarpus*), madar-fibre (*Calotropis gigantea*), and that whether it is a question of flax, hemp, cotton, ramie, sisal, *Hibiscus*, etc., it has long since been proved that all these crops can be grown without entailing more than the usual risks. On the contrary, since most of these crops require irrigation, they escape the dangers which beset dry crops. Today and especially to-morrow, when the irrigable areas will be extended and the problems regarding their utilization will arise, these plants should be given the importance due to them because of their qualities, yield and value for national economy.

## Agricultural credit

In Algeria, loans may be granted to young farmers over 21 and under 35 years of age (Law of 24-5-1946, applicable by Decree of the Governor General of 10-4-1948), in order to enable them to purchase the livestock and material required to set up a farm. The maximum amount loaned is 500,000 francs at 2½ per cent. The period for repayment is the same as for medium term loans but, in some cases, may be extended to 20 years.

A Government allowance, consisting of the rebate of half the annual instalment due on the loan, is made to young families after the birth of the second child.

## The Dar-Chichou Forest

The Dar Chichou Forest in Tunisia near Cape Bon is an example of the utility of reafforestation. Today, where 15 years ago there were nothing but encroaching dunes destroying crops, 7,000 hectares are covered with 12 million trees. This year another million trees will be added. This forest project is the work of a French forester, Mr Poggi, and Tunisians of the region who have found regular employment in reafforestation. The trees planted are all varieties of pines, eucalyptus and acacias. Among the forest products, mention may be made of mine props, general purpose timber, tannin, etc. These 15 years of reafforestation operations have cost 7 million francs.

(From "Le Chêne Liège", special fortnightly organ of cork-workers and foresters, Constantine).

## Olive-trees in Algeria

It is estimated that Algeria has 85 to 110 million hectares under approximately 10 million olive-trees with 8,500,000 in bearing. It is very diffi-

cult to obtain an exact inventory owing to the scattered nature of the groves. Except for 18,000 trees in the southern territories, the olive-trees are mostly grown in the northern regions. A quarter of the olive-groves are located in the Bougie district. The Massif Kabyle is the main production centre.

According to official statistics, there is a general constant increase in the areas being developed in Algeria by growing the olive. During the last 50 years the number of olive-trees have probably increased by half at the rate of 90,000 per year.

Official figures indicate an average production of 166,000 hl. of oil from 1930 to 1940. The average output for table olives is given as 85,000 quintals.

The 8,500,000 olive-trees in bearing produce 1,300,000 quintals of olives, i.e., about 15 kg. per tree. The olives average 13.6 per cent. oil and the tree 2 litres oil. This production is very low, particularly if account is taken of the annual consumption of Algeria which, between 1930 and 1940, amounted to 354,000 hl. of oil.

The Chief of the Arboriculture Division, Mr H. Rebour, who supplied these data\*, studies the future of olive-growing in Algeria, cites the example of Tunisia and draws several conclusions: It would be to the advantage of Algeria to foster exports, substituting for home consumption fats costing less than olive oil. Olive-growing should be encouraged in all regions where the soil is too poor to yield other products. He does not consider it unreasonable to anticipate, with a 20-year plan, the establishment of olive-groves comprising 10 million trees, which would be double the present number.

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In 1947, the volume of beverage wines in Morocco amounted to 341,000 hectolitres plus 35,000 hl of mistelle (wine made of unfermented grape-juice blended with alcohol) and 34,000 hl. of 'cachir' wines, making a total of 410,000 hectolitres. This vintage is approximately 76,000 hl. more than the 1946 vintage, according to the *Bulletin d'Information du Maroc*. On the other hand, the quality of the wine seems to be much inferior.

## Institute for Scientific Research in Central Africa

(Communication from the Belgian National Committee)

The National Scientific Research Fund, through the initiative of King Albert, was established as far back as 1928.

\* H. REBOUR, Situation actuelle de l'oléiculture en Algérie, *Revue internationale des Produits coloniaux et du Matériel colonial*, février-mars, 1948.



In 1933, the INEAC (Institut National pour l'Étude Agronomique du Congo belge) was set up in the Belgian Congo.

In five years, therefore, Belgium had given tangible evidence of the considerable importance attached to progress in pure and applied science.

Desirous of blazing still another trail along these lines, it was decided a few months ago to set up an Institute for Scientific Research in Central Africa. The Decree of the Regent relative to the establishment of this organization was signed at Léopoldville on 1 July 1947.

The aims of the IRSAC (Institut pour la Recherche scientifique en Afrique centrale) are indicated in the following paragraph taken from the 'Report to the Regent'.

"The Institute will set up in Africa one or several centres where Belgian and foreign research workers may carry out their studies. On the other hand, it will promote in every way research and any related work effected either by other institutions, or by private initiative".

A public body, the IRSAC is a legal entity and has its headquarters in Brussels.

Its object is to "start, promote, work out and coordinate", particularly in the Belgian Congo and Ruanda Urundi, the study of the sciences of man and nature.

The resources of the IRSAC are mainly supplied by the public authorities. With considerable capital available, it will shortly be possible to invest 200,000,000 francs in scientific establishments and equipment in the Colony.

The Board of Directors of IRSAC comprises twenty-four members, some of whom are appointed members of the Administrative Committee.

It should be noted that Belgium desired to give IRSAC an international character since the Board includes the American astronomer Harlow SHAPLEY, Director of the Observatory of Harvard University, the French botanist Aug. CHEVALIER, Professor at the National Museum of Natural History, Paris, and the English biologist E. B. WORTHINGTON, Scientific Adviser to the High Commissioner of East Africa, Nairobi.

Administration in Africa is assured by a director appointed by the Regent, on presentation by the Board of Directors.

Dr. Louis VAN DEN BERGHE, Professor at the Institute of Tropical Medicine, Antwerps, is the present holder of this post. Mr Jean-Paul HARROY, Secretary of the Administrative Committee of the Institute of National Parks for the Belgian Congo, is in charge of the European administrative section.

The following is a complete list of the experts on the Board of Directors and the Administrative Committee of IRSAC.

# Board of Directors.

Chairman : E. de BRUYNE, Senator, former Colonial Minister.

Vice-Chairman : M. LEGRAYE, Professor at the University of Liège.

Members :

Messrs E. BIGWOOD, Professor, University of Brussels

R. BOUILLENNE, Professor, University of Liège

P. BOURGEOIS, Director of the Royal Observatory of Belgium

R. BRADFER, Professor, Polytechnic Faculty of Mons

A. CHEVALIER, Professor, National Museum of Natural History, Paris

E. de JONGHE, Secretary General of the Royal Belgian Colonial Institute

A. DUBOIS, Director of the Prince Leopold Institute of Tropical Medicine

L. DUPRIEZ, Professor, University of Louvain

P. FONTAINAS, Emeritus Professor, University of Louvain

L. GUERDEN, Rector of the School of Veterinary Medicine, Ghent University

A. GILLIARD, Director General of the Military Geographic Institute

L. HAUMAN, Professor, University of Brussels

H. KOCH, Professor, University of Louvain

E. MALENGREAU, Professor, University of Louvain

Ch. MANNEBACK, Professor, University of Louvain

F. OLBRECHTS, Director of the Museum of the Belgian Congo

J. RODHAIN, Professor, Colonial University

H. SHAPLEY, Harvard College Observatory, Cambridge, Mass.

M. van den ABEELE, Director General of the National Institute for Agricultural Research in the Belgian Congo (INEAC)

H. VANDERLINDEN, Professor, Ghent University

V. van STRAELEN, President of the Institute of National Parks for the Belgian Congo

J. WILLENS, Director of the University Foundation and the National Scientific Research Fund

E. B. WORTHINGTON, Scientific Adviser to the High Commissioner of East Africa, Nairobi.

## Administrative Committee.

Chairman : Mr E. de BRUYNE

Vice-Chairman : Mr M. LEGRIVE

Members : MESSRS E. BIGWOOD  
R. BOUILLENNE  
P. BOURGEOIS  
H. KOCH  
Ch. MANNEBACK  
F. OLBRECHTS  
J. RODHAIN

Government Commissary : Mr A. DUREN, Medical Adviser to the Colonial Minister

Director : Mr L. van den BERGHE

Secretary General : Mr J. P. HARROY

## FAO ACTIVITIES



### World Food Council holds second session

*(Extract from FAO Information Service Bulletin Washington)*

The World Food Council met in Washington 5 to 17 April to appraise the latest developments in food and agriculture and to recommend urgent steps to be undertaken by member governments and FAO to improve the situation.

There were signs of some slight betterment in the world outlook for food since the Council last met in November. But the Council's optimism was deeply tinged with caution; even a bumper 1948 harvest will leave world production far below world needs. The prospective gains were small; more than that, they were not yet realized; bad weather in the next few months could wipe them out completely. Looking farther ahead, the Council found nothing in the outlook for the next three years to indicate that total world food production will rise far, if at all, above the average for the years before the war, when two thirds of the world's people were underfed. Meanwhile, the world's population continues to increase by 20 to 25 million a year.

"There are 150 million more people to be fed today than before the war", Sir John Boyd Orr reminded the Council. "Today there are no new

continents to discover. Therefore the additional food must be found from already known resources, and owing to soil erosion some of these resources are diminishing".

Viscount Bruce of Melbourne, Independent Chairman of the Council, asserted that the prospects at the moment were not of such a character "as to engender any optimism with regard to the future of the world food situation".

The Council, made up of 18 member nations of FAO, recommended a number of immediate or longer-term actions governments can take to increase supplies and improve distribution. It also gave directions as to how the FAO staff can best keep its work geared to the same objectives.

Briefly, the Council's major actions were as follows :

### Need for Continued Allocations.

The Council agreed that there still is need for a world pattern of allocations for important scarce foods. At the same time it noted the International Emergency Food Committee's belief that agreement on allocation recommendations and steps taken by nations to carry them out are becoming increasingly difficult.

There are several reasons for this : In exporting countries it is hard to restrain consumption in order to increase supplies available for allocation. Foreign-exchange shortages have increased the difficulty of reaching agreement on allocation recommendations. The operation of the European Recovery Program will have a marked effect on the flow of food in international trade. The International Wheat Agreement poses new problems for allocation arrangements within IEFEC. Some exporting countries use food as a political weapon or otherwise direct supplies toward promoting national interests.

This question then arises : Do governments wish to continue a system of allocations or rely on unilateral action and bilateral agreements in dealing with their food problems? The Council felt that these difficulties might call for possible modification, but not abandonment at present, of the work of IEFEC. In the near future IEFEC plans to ask governments participating in its work to report their views on the effectiveness of the allocating system and its probable usefulness in the future.

### Measure for Reducing Food Losses.

Governments were advised to intensify measures for reducing food losses due to lack of effective conservation practices, insect and rodent infestation, and animal disease. Losses from these causes are estimated at one-tenth of the total world food produced annually.



The Director-General was instructed by the Council to stimulate co-operative action of governments and to give them direct aid by setting up a central index of information on effective control measures.

The Council approved a recommendation of the Near East nations at their recent meeting in Cairo, Egypt, for convening an international locust conference. The Director-General was advised to call regional preparatory meetings of *ad hoc* committees of entomologists before convening the international conference.

It also made a specific recommendation for rice, a major crop particularly vulnerable to loss after harvesting, by endorsing a project for a rice conservation campaign in the principal areas of consumption and distribution of the cereal. The nations which met recently at Baguio, Philippines, had approved the plan for Council consideration.

#### **FAO/ECE Timber Subcommittee Getting Results.**

Definite signs of improvement in the European timber situation were indicated by the Director-General's report on European activities of FAO in the field of forestry and forest products. An FAO/ECE Timber Committee has been set up within the framework of the Economic Commission for Europe.

The Council took note of the fact that the timber-importing nations of Europe and the Mediterranean area in 1947 received 2.7 million standards of softwood, an increase of roughly one million standards over 1946. This resulted from all major countries of Europe (with the exception of USSR) carrying out the recommendation of the 1947 FAO European Timber Conference to increase the output and exports of timber by 10 percent.

Agreements concluded recently by the FAO/ECE Timber Committee justify hopes for further increases in timber production and exports in 1948, stabilization of timber prices, and a satisfactory distribution of available supplies.

#### **Rice and Fisheries Councils Approved.**

The Council approved the establishment of two new international bodies within the framework of FAO — the International Rice Council and the Indo-Pacific Fisheries Council. The creation of these intergovernmental groups was recommended by Conferences of nations of Southeast Asia at Baguio, Philippines, last February.

All FAO member governments are eligible for membership in the International Rice Council, which will be organized after acceptance of at least 10 countries. The countries that sign must represent at least half of the world production of rice in the crop year 1947-48. The Council's purpose is to facilitate co-operative action in matters relating to the production, conservation, distribution, and consumption of rice.

Agreement to establish the Indo-Pacific Fisheries Council was reached by eight FAO member nations at the Baguio Conference. Its purpose is the development and proper utilization of marine resources in the Indo-Pacific areas. Membership is open unconditionally to FAO member governments, and to non-member governments subject to the approval of the FAO Conference and two-thirds of the members of the Fisheries Council.

#### **Council Policy on Projects Needing Finance.**

Many national programs for developing food and other agricultural production require financial assistance from outside the country. Both the Council and FAO itself have been asked to support the applications of member governments for international loans. The Council laid down the policy that its responsibility is to state whether the projects for which loans are asked are in line with the world-wide effort to expand food production and consumption. Neither the Council nor the FAO secretariat, it was decided, is in a position to appraise the technical or financial soundness of a project or to act as sponsor for any specific loan application.

The Council gave sympathetic consideration to a request from the Polish government for support of a loan to implement the recommendations of the FAO Mission to Poland. It instructed the Director-General to do everything in his power to assist in this matter.

A Council resolution expressed interest in irrigation projects for Near-East countries requiring international loans for their development. The projects came before the Council as a recommendation of the regional conference held recently in Cairo. Since the projects were "for the purpose of bringing into cultivation further land for the production of essential food", the Council requested the Director-General to take all possible action to assist the governments in carrying them out.

#### **Plans for Annual Review.**

In exploring all avenues toward larger supplies of food, fiber and timber, the Council considered the need for effective and co-ordinated national planning. Since national plans separately arrived at will not necessarily fit into a world pattern, the need was stressed for an annual review of national situations and plans. By this means each country can make its plans in the light of the problems and plans of other nations.

The Council recommended that, in preparing for the program review at the annual Conference, FAO bring together data submitted in reports from member governments and from other sources, analyze them, and present them in a single concise

document that can serve as a basis for consideration by the Policy Committee and then for the review by the Conference.

#### Members of Advisory Committees Named.

Several nominations to fill vacancies in FAO Standing Advisory Committees were approved by the Council. Most of these were for the Standing Advisory Committee on Rural Welfare, of which only the Chairman, Professor André Mayer of France, had been previously appointed. The nominations approved for this Committee were: Mrs. Raymond Sayre (U.S.A.), Newton de Castro Belleza (Brazil), C. C. Liang (China), Dr. Manuel Gamio (Mexico), and Dr. Carl Taylor (U.S.A.). The Director-General was authorized to nominate one additional member from Scandinavia and one from Eastern Europe for confirmation by the next Council session. The Rural Welfare Committee will also include representatives of United Nations agencies working in allied fields.

Hans G. Winkelmann, director of the Swiss Association of Forest Economy, Soleure, Switzerland, was confirmed as an additional member of the Forestry Committee. A Latin-American forester, not yet nominated, is to be selected after consultation with governments concerned.

Professor J. de Castro, director of the National Institute of Nutrition, Rio de Janeiro, Brazil, and Dr. Hsien Wu, senior adviser to the Ministry of Health, Nanking, China, were approved as additional members of the Nutrition Committee.

#### Regional Activities.

The Council of FAO authorized the Director-General to proceed with the plans for establishing regional offices. Regional offices, the Council agreed, should be outposts of a strong FAO headquarters, and not autonomous units. It was agreed that the technical program of FAO in each region should continue to be the full responsibility of the Director-General through the Divisional Directors.

The Council approved the Director-General's decision to maintain the European FAO Office in Rome, pending selection of the Organization's permanent headquarters, and thanked the Italian Government for its offer of premises. Representatives of the Near East countries expressed the view that the office for their region should be at Cairo. The majority of representatives from Southeast Asia were in favor of rotating the regional office from country to country every two years. They recommended that the first site be chosen by the Director-General.

A committee, consisting of the Council representatives of Brazil, Chile, Cuba, and Mexico, was established by the Council to assist the Director-General in making plans for regional work in Latin America.

#### Annual Conference.

The fourth session of the Conference will be held at temporary FAO headquarters in Washington beginning November 15. The Council of FAO will meet in Washington November 1.

#### Highlights of Council and Conference Speeches.

I do not say that FAO alone can bring the world a better and more secure food supply. But I do say FAO can help. I do not say that food alone will bring order, decency and peace in the world. But I do believe that there can be no peace in a hungry world. — Norris E. Dodd

A civilization which cannot find food for its people is one which cannot endure. — Sir John Boyd Orr.

FAO is one international body that is making progress, and that can make great progress in the future... By showing that international co-operation is possible in the economic field, it might pave the way toward that co-operation that is vital in the political field, if the peace of the world is to be maintained. — Viscount Bruce of Melbourne, Independent Chairman of the Council of FAO.

Rice is the major item in the diet of more than half the population of the world. — S. Y. Krishnaswamy, India.

About 50 percent of the agricultural population of the world is in Asia, therefore about 50 percent of FAO's work should be concentrated on that area. — E. de Vries, Netherlands.

In spite of great shortages under which the world has labored during the past two or three years, widespread starvation has been avoided. I am convinced that the system of international co-operation known as IEFC has been a major factor therein. — L.A.H. Peters, First Vice-Chairman of IEFC.

Despite the variations necessary in handling different commodities and the increasing importance of multilateral and bilateral trade agreements, which make the work of IEFC more difficult, the IEFC system should be maintained. — G. R. Oake, United Kingdom.

The problems of fisheries on the high seas are essentially international since fish are free to move in spite of man-made frontiers. — D. B. Finn, Director, Fisheries Division of FAO.

The Latin American countries can increase their production of food and can export more food to other areas when their resources are properly developed. — Higinio Gonzales, Chile.

Netherlands has an exportable surplus of 400,000 tons of vegetables, of which 200,000 tons may find no market... Countries must look to FAO for guidance in their effort to avoid destroying food when so much of the world is hungry. — A. H. Boerma, Netherlands.



## Joint Committee of FAO and ECE on Agricultural Problems

The third Session of the Economic Commission for Europe (ECE) at Geneva on 26 April 1948, taking into account the imperative need of coordinating international activities for the reconstruction and rehabilitation of European agriculture, adopted an important resolution which reads as follows:

CONSIDERING that the development and rehabilitation of European agriculture is of vital importance for the economic reconstruction of Europe, for the promotion of intra-European trade, for the achievement of a balanced economy, and for raising the overall level of European economic activity; and

HAVING NOTED that the agreement between the United Nations and the Food and Agriculture Organization of the United Nations recognizes the Food and Agriculture Organization as the competent specialized agency in the field of agriculture, and provides for cooperation between the Food and Agriculture Organization and the Economic and Social Council and its organs, for prevention of duplication between them, and for taking whatever further measures may be necessary to make the liaison between the two organizations fully effective; and

HAVING NOTED that the Economic and Social Council Resolution of 4 March 1948 on the continuing world food crisis "invites the specialized agencies, and the Regional Economic Commissions concerned, in consultation with FAO, to study suitable measures to bring about an increase in food production by the elimination of supply shortages such as those of oil, coal, steel, electricity, chemicals, which directly or indirectly affect the production of fertilizers, agricultural machinery, and the availability of transport"; and that a Resolution of the FAO Council of 16 April 1948, recommends "that the Director-General continue to seek to establish further cooperative arrangements, as required by particular problems and such as meet with the approval of the Member Governments in the region concerned";

### RESOLVES:

(a) to establish an *ad hoc* Committee on Agricultural Problems of Common Concern to the ECE and the FAO, which shall:

(1) determine those problems militating against the development and rehabilitation of European agriculture, the solution of which will be facilitated by cooperative measures on the part of FAO and ECE;

(2) recommend the best means of securing the necessary cooperation within this field, taking into consideration the respective responsibilities and organizational structures of the two bodies.

(b) that the Executive Secretary is authorized:

(1) to convene on the basis of the findings of the *ad hoc* Committee and in consultation with the Director-General of FAO, working parties on specific matters in the above category which require immediate action, such working parties shall keep appropriate organs of FAO and ECE informed of actions taken;

(2) provide, if requested by FAO, for the cooperation of ECE at meetings of common concern convened by FAO;

(c) that the *ad hoc* Committee shall submit a report to the FAO Council and the next Session of ECE;

(d) that membership in the *ad hoc* Committee shall be open to the members of ECE and to the European Members of FAO non-members of ECE. Other European states may be invited to participate, in accordance with the decisions already taken by ECE.

## Special session of the FAO Conference in Washington in April 1948

In No. 5 of this Bulletin, we mentioned briefly that the highest organ of the Food and Agriculture Organization of the United Nations — the FAO Conference — was convened for a special session on 6 April 1948, in Washington. We are now in a position to give this additional information.

The Conference elected as Chairman Sir Carl Berendsen of New Zealand and as Vice-Chairmen Mr. Henrik de Kauffmann of Denmark, Dr. Newton de Castro Belleria of Brazil and Mr. Mohamed Amin Zaky of Egypt; and then dealt with the agenda, which comprised the appointment of the new Director-General of FAO, and applications for membership by the Governments of the Turkish Republic and of Ceylon.

Turkey and Ceylon became members of FAO raising the total FAO membership to 57 nations. The Organization started with 42 members at Quebec in October 1945.

Adnan Kural, Adviser of the Turkish Delegation to the United Nations, represented his country at the Conference. Mr. Kural expressed "warmest thanks" for his country, and pledged it to the aims set forth by the FAO constitution.

"These aims must be attained", he said, "if they are pursued energetically in the countries themselves and supported at the same time on

an international scale by a competent organization such as FAO."

Ceylon, which has recently attained dominion status as a member of the British Commonwealth, was unable to send a representative. Sir Ralph Enfield, speaking for the United Kingdom, whose delegation formerly included Ceylon in its representation, welcomed the new member into FAO.

As stated in our last issue, Mr. Norris E. Dodd was appointed new Director-General of FAO.

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The Organization was represented by an observer in the person of Mr. A. Van Houtte, Secretary of the Regional European Office of FAO, at the XIIth International Olive-growing Congress held in Algeria from 3 to 14 May, 1948. The Congress was organized by the National Olive-growing Association of France and North Africa and supported by the Government-General of Algeria, the International Federation of Olive-growers and the Governments of olive-growing countries. The following countries took part in the Congress: Algeria, France, Greece, Italy, Morocco, Portugal and Tunisia. The agenda of the Congress included reports and discussions on the following items:

(a) present situation of olive-growing and of olive oil production in all olive-growing countries;

(b) present methods employed in every olive-growing country in the control of the chief parasites of the olive; results obtained;

(c) methods now adopted in every olive-growing country in the milling of olive oil;

(d) the olive oil trade in olive-growing countries;

(e) the preserved olives' industry in olive-growing countries, varieties, preservation methods, importance, etc.;

(f) utilization of olive oil in medicine and therapeutics.

*Inter alia* the Congress expressed the wish that olive oil might again be struck off the list of products subject to the IEFC assignment system.

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An agricultural exhibition with the participation of the Slavonic countries and the U.S.S.R was opened in Prague on 2 May 1948. It was to have closed on 23 May, but owing to the great affluence of visitors the closing date has been postponed until the end of June. Approximately 2 million people attended the exhibition during the first fortnight.

The culminating event was the procession of 16 May depicting the evolution of Czechoslovak agriculture during the past 100 years in an alle-

gorical form, and thus commemorating the centenary of the abolition of serfdom.

On this occasion the responsible ministers addressed the numerous participants in this manifestation.

Mr. A. Van Houtte, representing FAO, attended this spectacular march-past and visited the exhibition at the invitation of the Minister of Agriculture.

Together with representatives of farmers' organizations of the different European countries, he was then taken on a tour round the agricultural region of Hradec Kralove, visiting a State experiment station, agricultural cooperatives, pig-breeding farms and a community centre being erected in Tutleky.

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We wish to add a few particulars to the news item in No. 5 of this Bulletin stating that FAO was exploring the possibilities of organizing a school on control of pests of stored food, as desired by the European National Committees of FAO at their Fourth Meeting in Rome, 17-21 February 1948.

M. Tuure A. Pasto of the European Regional Office of FAO in Rome visited Czechoslovakia and Poland in May 1948 in order to take up this problem with the respective authorities; in addition to the business in hand his official talks, however, covered necessarily a wider range of questions interesting those countries and FAO.

An International Meeting on Animal Diseases Control is planned to be convened in Krakow by FAO in agreement with the Polish authorities probably in November 1948. This meeting also purports to enable the experts of European countries to compare notes and discuss the latest techniques in this field.

## Seed samples sent by FAO

In addition to the information given in Luigi Fenaroli's article in our last issue, on "Hybrid Corn Program in Europe", we should like to inform our readers that, since the early spring of 1948, FAO has been sending seed examples of newly developed or improved varieties of crops to Austria, Czechoslovakia, Hungary, Italy, Poland, Yugoslavia, and China. Seed of trees, vegetables, forage crops, grasses, legumes, potatoes, sugar beets, cereals, sorghum, sunflower, soybeans, and flax have already been sent. This seed will enable plant breeders in the different countries to begin experimental work that should lead to the improvement of native crops and the use of new ones, with the objective of increasing food production. The service was made possible through funds transferred from UNRRA to FAO.



## FAO aids China to wipe out cattle plague : vaccination of 15 million head of cattle starts

Rinderpest — the most serious disease of cattle in China — may be entirely eradicated from the area south of the Yangtze River by the end of 1949 as a result of the full-scale vaccination campaign just started by the Chinese Ministry of Agriculture, aided by the Food and Agriculture Organization. Rinderpest alone kills annually one million head of cattle in China, and has long been one of the major causes of famine there. Chinese farmers are entirely dependent on these cattle — the water buffalo and the China cow — for draft power to till their ricelands. The present distribution of animals allows only one animal to every two families and the death of this animal means that the farmer must till the land by hand. Under this new control campaign farmers can now expect to have their cattle made immune to rinderpest with a new vaccine which was developed by Canadian and American scientists during the last war to combat possible biological warfare.

This team of scientists worked out a cheap mass-production technique for producing safe vaccine by passing the bovine rinderpest virus through chick embryos. It was found that the virus became adapted to the bird tissue environment — avianized — and caused only minor reactions in animals, while giving lasting immunity. By the old method of producing vaccine, cattle were infected with the virus and when killed would provide only enough to vaccinate 50 to 200 animals.

The new avianized rinderpest vaccine is now being successfully produced at the laboratory of the Southeast Epizootic Bureau at Hsiao Hong, Nanking. Enough vaccine can be produced there every year to provide 20 million doses, each egg producing 50 to 60 doses. The cost is a mere fraction of that of the old organ tissue vaccine. This will allow not only for the production of sufficient vaccine to vaccinate all the animals south of the Yangtze River within a year, but will allow for production in future years to vaccinate the animals north of the Yangtze, and still leave a margin for export.

The control campaign has already started in Kwantung and Kwangsi provinces, and will be extended to 11 other provinces in the area south of the Yangtze River before the end of the year. Existing veterinary organizations in these provinces are co-operating in the campaign. Fifty-five field teams, each comprising six specialists, as well as 50 workers to be employed as inspectors, supervisors and business managers, will eventually take part in the full program, involving vaccination of some 15 million head of cattle.

Apart from eradication of rinderpest in this area, the campaign will enable farmers to till additional acres of ricelands and will result in an appreciable increase in crop production. Also an additional production of 200,000 tons of animal protein will be available to help raise the nutritional standards of the people in this area. In general, the campaign will produce a sound animal husbandry program to augment the present farming system.

FAO is also working to eradicate rinderpest from other areas of the world. A preliminary survey of the situation in Siam has been concluded, and as a result of this survey FAO is now planning the establishment of a Far East Veterinary Committee to co-ordinate the attack on rinderpest with all neighbouring countries.

## Mr. S.L. Louwes leaving the FAO

Mr. S. L. Louwes, Special Adviser to the Director of FAO, is leaving this organization to take up an important post with his government in the Netherlands. Since 1945 he has been organizing regional FAO activities in Europe and has also been in charge of the European Bureau of FAO in Rome. Mr. Louwes was born on 29 March 1889 in Ulrum, Groningen, Netherlands. After various provincial appointments he was appointed Government Commissioner for Affairs dealing with the Agricultural Crisis in the Netherlands. In 1936, in this capacity, he was charged with the preparation of measures for Emergency Food Supplies and dealt with the food supplies in Holland during the war years. In 1945 Mr. Louwes was appointed the Netherlands delegate to the FAO Quebec Conference and in November 1945 Special Adviser to the Director General of FAO.

In 1946 he was made a Great Officer of the Order of Orange-Nassau and in 1947 Doctor Honoris Causa in Agriculture by the Agricultural University at Wageningen, Holland. Mr. Louwes, an immensely able administrator and organizer will be missed by all those who have been in contact with him during the three years he spent with FAO.

## FAO Publications

The first 72-page issue of a new quarterly, the Economic Review of Food and Agriculture, has just been published by the Food and Agriculture Organization in Washington. The review is designed to provide current reports and interpretations of important aspects of the world food and agricultural situation.

The current issue gives the world-wide pattern of food production, trade, and consumption prospects during the 1947/48 crop consumption year.

Recent trends in international trade policy and the development of various types of trade controls are also discussed.

The effects of the recent partitioning of India on the production of jute, which supplies the raw material for most of the world's agricultural bagging, are reviewed. The article points out that it is highly uncertain that the world requirements of jute can be met, as a result of the partition of Bengal which has cut the jute economy in two. Raw jute resources are now concentrated in Pakistan, while the jute-mill industry is located almost entirely within the Dominion of India. Apart from the immediate effects of partitioning on the flow of jute to the Indian mill industry, trade in jute has suffered a further setback because of difficulties between India and Pakistan over sharing of jute export revenues, the article says.

An article on reconstruction in Czechoslovakia examines aspects of the country's agricultural economy, and discusses the Government's five-year agricultural plan.

Each succeeding issue of the quarterly will contain a review of the current world food situation. Material will also be included on commodity situations, agricultural legislation, credit, co-operatives, and labor, as well reports of special studies made by FAO.

Copies of this review can be obtained from International Document Service, Columbia University Press, 2960 Broadway, New York 27, N.Y., price 50 cents. A French edition is in preparation.

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The Economics, Marketing and Statistics Division of FAO in Washington has published hitherto three trial numbers of its monthly "Food and Agriculture Statistics". We mentioned in our last issue the objectives of this periodical.

No. 1 of January 1948 surveys the index numbers of wholesale prices and of those paid to producers of agricultural products, and gives statistics on areas and production of wheat, rye, maize, barley and oats, information (on export of wheat, wheat flour, rye and maize, for the most part until June 1947, and contains data on rice distribution between January 1947 and June 1948.

No. 2 of February 1948 gives information on wheat areas and production, cattle and hog numbers, wheat and wheat flour exports, maize and rye trade, and on agricultural prices.

No. 3 of March 1948 gives news on linseed areas and production, horse and mule numbers, wheat, wheat flour and maize trade, prices of agricultural products, index numbers of food retail prices, etc.

The accompanying text in all three numbers is in both English and French.

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The FAO pamphlet "*Thieves of Stored Grain*" which we mentioned in our last issue is now also available in the French edition under the title "*Mort aux Pilleurs de Grains*".

We should like to draw the attention of our readers in this connection to the 174-page publication entitled "*Preservation of grains in storage*" (price \$1. 50) which was issued in February 1948 as No. 2 of the FAO Agricultural Studies, and contains more detailed information on the subject.

"*Preservation of grains in storage*", arranged and edited by Stephen S. Easter, entomologist of the Plant Industry Branch of the FAO Agriculture Division, makes available to readers papers written by experts and presented at a meeting called by FAO in London, 5-12 August 1947. They deal specifically with infestation control in stored food or food in transit, and provide a body of up-to-date information which, while by no means exhaustive, provides a stimulating approach to the best available knowledge on the control of insects, mites, fungi and rodents.

It will be remembered that No. 1 of the FAO Agricultural Studies is "*Breeding Livestock adapted to unfavourable Environments*", which was mentioned in our last issue.

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In the regular Commodity Series, compiled by the FAO in Washington, new numbers have been added to those published previously. We should like to draw the attention of our readers to this source of valuable information.

The first number on 'Wheat' was published in English, French, and Spanish in March 1947. The 63-page printed publication with 34 statistical tables and charts in text and 5 tables in appendix surveys the world wheat situation before 1949 and gives information on the four major exporting countries (U.S.A., Canada, Argentina, Australia) as well as on U.S.S.R. as a potential wheat exporter, on Latin America and the Orient, and on the European wheat market. The fact that this publication in all three languages was sold out by February 1948 testifies to its intrinsic value as a source of information and to the interest it aroused.

The second number, published in January 1948, in English and French — the Spanish edition being in preparation — also deals with 'wheat'. It gives news on the bread grain situation, wheat and rye production in 1947, yields of bread grains in Europe, flour extraction rates, need for increased production, distribution of supplies, bilateral agreements, International Wheat Agreement, and prices of wheat. (55 pages, 12 tables in text, 19 statistical tables as appendices.)



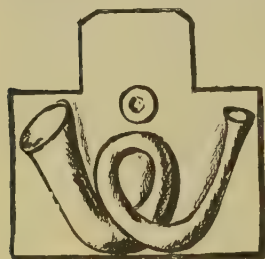
The title of the third number of the Commodity Series published recently in English, is 'Livestock and Meat'. This 49-page bulletin with two appendices and 6 statistical tables covers the world situation and outlook respecting livestock and includes discussion of livestock numbers, meat production, meat consumption, international trade, and current price levels and relationships. French and Spanish translations are in preparation.

Number 4 on 'Dairy Products', published in English and French in February 1948, deals with the world dairy products situation, paying particular attention to production, trade and consumption in 1946/47 in relation to the prewar levels, and considers the prospects for 1947/48. This 36-page publication with 11 tables in text and statistical tables in appendix also gives information on cow numbers and milk yields, milk utilization, international trade in dairy products and consumption and retail prices.

The 27-page Number 5 on 'Poultry and Eggs', with 12 tables in text and 8 statistical tables in appendix, gives a survey of the current situation and outlook, chicken numbers and egg production, consumption and international trade in eggs. The English and French editions are available.

Numbers 2-5 of the Commodity Series may be ordered at the price of 25 cents per copy from Documents Distribution and Sales Service, FAO, 1201 Connecticut Avenue Northwest, Washington 6, D. C., U.S.A. The Spanish edition of Nos. 4 and 5 is in preparation.

## NEWS IN GENERAL



**World faced  
with famine**

Sir John Boyd Orr, retiring Director General of the Food and Agricultural Organization of the United Nations gave an ominous warning to the world when he spoke recently at London University "There is no new land to be brought under cultivation" he said, "fertility is being lost rapidly through erosion, the world's population is rising rapidly, and, unless the nations turn their attention

from preparation for war to a world-wide drive for maximum food production, famine will bring our civilization down in ruin. It takes nature 300 to 1000 years to build up one inch of fertile soil: man by his wanton misuse is destroying eight inches in two generations. In the U.S.A., which has lost half its original forests, three trees are being cut down for every two planted. About one-quarter of the original crop and pasture lands has already been ruined, and it is estimated that three million tons of fertile top soil are lost every year. The same process is going on to some extent in all continents". Sir John said that there are 150 million more people in the world to-day than there were in 1938; during the lifetime of our children it is estimated that there will be 500 million more . . . . "Men will not quietly die from starvation and revolutions and wars have in the past been caused by food shortages". He implored the United Kingdom and the British Commonwealth to use its influence and prestige to take the leadership in getting science applied to the welfare of the peoples of all countries, irrespective of race, creed or political ideologies.

("Farmer and Stockbreeder", 15 May 1948).

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On 7 April, 1948 the World Health Organization became a permanent organization and achieved the full status of a Specialized Agency of the United Nations, as the ratifications on that day of the WHO Constitution by Mexico and the Byelorussian S.S.R. brought the total member of ratifying states to 27, i.e. one more than the required number. The First World Health Assembly is scheduled to convene at Geneva on 24 June, 1948.

## The menace of soil erosion

Dr. Hugh Hammond Bennett, Chief of the U.S. Soil Conservation Service pleads for an immediate vigorous soil-conservation program on a world-wide scale in an article published in the "Geographical Review" (April 1948) under the title 'Soil Conservation in a Hungry World'.

In the author's opinion, soil conservation is the most significant agricultural development of the present time. There may be some danger in the present tendency to emphasize impoverishment of soil by removal of plant nutrients unless due emphasis is also laid on the deadlines of erosion. The loss of topsoil cannot be made good.

Some nutritionists judge that at least 2 1/2 acres per caput of reasonably productive cultivable land were needed to furnish each person with a minimum nutritional diet. As there are left in the world, according to an estimate of the Soil Con-

servation Service, about four billion acres of immediately available arable land for more than two billion world's population, it is clear that some nations have less than enough. Moreover, the situation tends to become more serious with the world's population increasing faster than ever.

The author maintains that erosion and over-use of land, outranking all other causes of malnutrition and famine, will menace humanity on a scale far exceeding anything the world has ever known, unless soil conservation becomes very soon a major factor in our national and international deliberations, decisions and actions.

## Rubber Study Group

The British 'Board of Trade Journal', in its number of 8 May 1948, announces that the fifth meeting of the Rubber Study Group held in Washington, D.C., under the chairmanship of Mr. Donald D. Kennedy, Chief, Division of International Resources, U.S. Department of State, was attended by delegates from Australia, Belgium, British Colonies, Burma, Canada, Ceylon, Czechoslovakia, Denmark, France, Hungary, Italy, Liberia, Netherlands, United Kingdom and United States and observers from the United Nations, FAO, Pan-American Union and the International Bank for Reconstruction and Development. The principal objects of the meeting were:

- to examine the statistical position regarding production, consumption and stocks of rubber throughout the world;

- to review the world rubber situation in the light of the changes in that position since the fourth Study Group meeting held at Paris in July, 1947;

- to consider measures designed to expand world consumption.

The Group examined the statistical position and made estimates for natural rubber production and the total consumption of natural and synthetic rubber during the years 1948 and provisionally for 1949. During 1948, it was estimated that world production of natural rubber would be in the neighbourhood of 1,390,000 tons, while total consumption of natural and synthetic rubber might be in the region of 1,745,000 tons, of which about 1,310,000 tons would be natural rubber. In regard to 1949, it was estimated that natural rubber production would be of the order of 1,550,000 tons, while total consumption of natural and synthetic rubber might again be 1,745,000 tons. The Group felt the need for projecting their estimates beyond the current year but the figures for 1949 should be treated with the greatest caution.

There was an exchange of views on the subject of the price of natural rubber. The discussion

covered the field of commodity agreements, Government control of the sale and purchase of natural rubber and special arrangements for the purchase of natural rubber by Governments from Governments for stock-piling at fixed prices. The Group reached the conclusion that the time had not arrived for consideration and examination of a commodity agreement.

The Group continued their policy of examining all means for encouraging the expansion of the world consumption of rubber. They consider that every effort consistent with national security requirements should be made to ensure that exchange and trading in rubber should be freed. They again expressed the hope that maximum assistance would be given to the countries desiring to make an extensive use of rubber but which, on account of the war, cannot afford to pay in foreign currencies for the rubber imports they require. The Group are of the opinion that only by a sustained and continued expansion of its use can the problems of rubber be permanently solved and that all well-directed efforts towards that end should be supported and encouraged.

The Group accepted the invitation from the United Kingdom Government to hold their next meeting in Kuala Lumpur in the Federation of Malaya early in 1949. The British Colonies, Ceylon, France, the Netherlands, the United Kingdom and the United States were appointed to form the Management Committee.

## Lack of fuel in Greece and its results

That lack of fuel means shortage of food is once more demonstrated, this time in the case of Greece by C.S. Stephanides, in an article published in the March issue of 'Foreign Agriculture'.

Continuous cutting of forests has depleted the wood supply in Greece, with the result that, in order to warm their houses, cook their food, do their laundry, the villagers and farmers burn manure along with crop residues such as straw, and thus deprive their land of the most effective soil builder. Naturally soil productivity declines, and poverty and hunger ensue.

In the village which was the subject of study, as much as four-sevenths of the manure production were burned; in addition to that, large amounts of cow droppings were collected from the pasture. On the average, a farmer uses a little over 2 tons of straw for fuel annually.

The author visualizes as the best solution, an extensive introduction of lignite coal, which is abundant in both Northern and Southern Greece. The primary problem, however, is that of finding a suitable method of burning it, as it cannot be used in stoves adapted to other fuels. The in-



ventor of such a stove for the Greek farmer and villager would contribute considerably towards the reforestation of Greece, and improvement of its agriculture and food supply.

## Incorrect statements on burning part of the world's coffee crop

The Trade Journal "Tea and Coffee" publishes in its issue of March 1948 a refutation of incorrect statements that one-half of the world's coffee crop is burned every year. It is pointed out that no coffee at all had been burned in producing countries for many years and that none is likely to be in the foreseeable future. The steadily increasing demand has outstripped production and there is no surplus of coffee of any kind in the world. In the past, Brazil was the only country to destroy coffee on a large scale.

The facts are that 71,851,000 bags were destroyed from June 1931 to 30 June, 1941; 3,789,000 from 1 July, 1941 to 30 June, 1942; and 2,574,000 bags from 1 July, 1942 to 31 December, 1944. There has been no official destruction of coffee since 31 December, 1944; and, as one can see from the above figures, the amount of coffee destroyed never equalled one half of the world's crop.

## CONGRESSES AND MEETINGS

### National and International Meetings and Congresses

JUNE	24	Geneva - First World Health Assembly.
	28	Washington - International Wheat Council Preparatory Committee.
	28	Geneva - Committee on Building Timber. ECE.
JULY	5 to 6	Geneva - European Commission for Forestry and Forest Products.
	7 to 14	Stockholm - 8th International Congress of Genetics.
	12 to 18	Paris - Seventh International Congress of Agricultural and Alimentary Industries.

JULY	15	Paris - International Union of Biological Sciences. Conference on genetics Terminology.
	18	Montevideo - Meeting of FAO Experts on Nutrition
	21	Stockholm - 13th International Zoology Conference.
AUGUST	9 to 14	Stockholm - Eighth International Entomological Congress.
	20 to 27	Copenhagen - World Poultry Congress.
SEPT.	6	Geneva - Economic Commission for Europe - Fourth session.

## National and International Fairs

JUNE	10 to 25	Barcelona - International Fair.
	11 to 21	Budapest - International Fair.
	19 to 4 Jul.	Luxembourg - National and International Fair - Exhibition of Industries, Hotels, Food, Gastronomy and Tourism.
	23 to 30	Milan - International Exhibition of Animal Production.
	26 to 11 Jul.	Casablanca (Morocco) - International Fair.
JULY	15 to 30	Seraing (Belg.) - Trade Industries and Agricultural Fair.
	15 to 15 Sept.	Ancona (Italy) - Fisheries Exhibition.
AUGUST	2 to 4	Verona (Italy) - Agricultural and Horse Fair.
	3 to 18	Siena (Italy) - Exhibition of Italian Wines.
	13 to 2 Sept.	Varna (Bulgaria) - International Fair.
	20 to 20 Sept.	Izmir - International Fair
	24 to 7 Sept.	Bolzano - International Fair of Agriculture, Handicraft and Tourism.
	25 to 9 Sept.	Groningen - General Commercial Agriculture and Industrial Exhibition.
	25 to 5 Sept.	Stockholm - International Fair of St. Erick.
	26 to 6 Sept.	Ghent - Flanders International Fair.
	29 to 6 Sept.	Frankfurt am Main - Agricultural Exhibition.
	31 to 14 Sept.	Plovdiv (Bulgaria) - International Fair.
SEPT.	1 to 21	Salonika - International Fair.

SEPT.	1 to 9	London - International Commercial Transport Exhibition.
	3 to 7	Leipzig and Frankfurt - International Fairs.
	3 to 13	Budapest - International Fair.
	5 to 12	Vienna - International Fair.
	6 to 21	Bari (Italy) - International Fair of the Levante.
	6	Louvain - Horses and Livestock Competition and Exhibition of Agricultural Machinery.
	7 to 13	Utrecht - International Fair.
	8 to 19	Parma - International Conserves Exhibition.
	11 to 26	Lausanne - 29th Swiss Food, Agricultural and Handicraft Fair.
	11 to 26	Marseille - International Fair.
	12 to 19	Prague - International Fair.
	14 to 16	Cologne - International Fair.
OCTOBER	20 to 28	Gdansk (Danzig) - International Fishery and Navigation Exhibition.
	26 to 29	London - 62nd Dairy Annual Exhibition.

yearly publication, about 100 pp., Annual subscription \$ 0,90, Separate numbers \$ 0.50].

#### (b) YEARBOOKS

1. Farm Accountancy Statistics for 1937-38 to 1944-1945, *English-French, bilingual edition* [113 pp., \$ 1.50]
2. International Yearbook of Agricultural Statistics 1941-42 to 1945-46 [in three volumes with one supplement], *also in French*.  
Vol. I. Agricultural Production and Numbers of Livestock [269 pp., \$ 1.80]  
Vol. II. International Trade [582 pp., \$ 3.00].  
Vol. III. Apportionment of Areas, Agricultural Production and Numbers of Livestock in various countries [336 pp., \$ 2.00].  
Supplement to Volumes I, II, and III [56 pp., \$ 0.50]  
[for three volumes and supplement \$ 6.50].

#### (c) MONOGRAPHIS

1. The World's Coffee, *also in French and Spanish* [530 pp., \$ 5.00]
2. Sericulture in the World [226 pp., \$ 2.00].
3. Cork Production and International Cork Trade, *also in French* [158 pp., \$ 1.50].

#### (d) REPORTS

1. Reports on the Meetings of Experts and the European National Committees, December, 1946 July 1947, *also in French* [123 pp., \$ 1.20].
2. General Report of the Fourth Meeting of the European National Committees, Rome, February 17-21, 1948, *also in French* [18 pp., \$ 0.20].

#### (e) MISCELLANEOUS

1. Catalogue of Periodicals owned by Library, *English-French, bilingual edition*, [584 pp., & 1.30]
2. La première liberté: Manger [40 pp., \$ 0.20].

#### TO BE PUBLISHED SHORTLY

1. Annuaire international de Législation agricole, 1946. *French edition only*.
2. Systematic Book Catalogue owned by Library,
3. Les grands produits agricoles: Compendium de Statistiques, 1924-1938, *French edition only (Reprint)*.
4. Livestock Classified according to Age, Category and Breed, and Numbers of Animals Registered in Pedigree Books. *English-French, bilingual edition*.
5. Annuaire international de Législation agricole 1943 à 1945. *French edition only*.
6. International Yearbook of Agricultural Legislation 1947, *also in French*.

## AGRICULTURAL PUBLICATIONS



**Publications  
issued by FAO  
European  
Regional  
Office \***

PUBLISHED AS FROM JULY 1946  
TO JULY 1948

#### (a) PERIODICALS

1. Food and Agriculture: the FAO European Bulletin, Nos. 1 to 6, 1947-1948, *also in French* [Bimonthly publication, about 100 pp., Annual subscription \$ 2.60, Separate numbers \$ 0.50]
2. Food and Agriculture: International Law Journal, Nos. 1 and 2, 1947, *also in French* [Half-

\* A complete list of the publications issued by the former International Institute of Agriculture and the FAO European Regional Office will be sent on request.



# LEGISLATIVE NEWS

SUMMARY: I. UNITED NATIONS ORGANIZATION (Netherlands, Switzerland). — II. NUTRITION: (a) Cereals, flour, bread (France, Switzerland); (b) Meat (Belgium, Luxembourg, Netherlands); (c) Milk and cheese, eggs (Belgium, Luxembourg). — III. AGRICULTURE: (a) Organization and improvement (France); (b) Relief and premiums (France, Italy); (c) Compulsory loaning of farm material (Poland); (d) Granting of wasteland to peasants (Italy); (e) Land reclamation (Italy); (f) Rice-growing (Portugal); (g) Seed potatoes (Portugal); (h) Seed-testing (Finland); (i) Farm contracts (Belgium, Italy); (j) Farm machinery (Finland); (k) Agricultural credit (Czechoslovakia, France); (l) Phytosanitary control (Belgium, France, Luxembourg); (m) Stockbreeding (Belgium, Italy, Luxembourg, Switzerland); (n) Diseases of livestock (Luxembourg). — IV. ECONOMIC AFFAIRS AND MARKETS: (a) Economic projects (Czechoslovakia); (b) Price control (Finland, France); (c) Agreements and conventions, control of foreign trade (Belgium, France, Poland, Switzerland); (d) Egg trade (France); (e) Excise duties (Belgium, Italy, Luxembourg, Norway). — V. STATISTICS (Belgium, France). — VI. GAME (Czechoslovakia). — VII. FISHERY (Netherlands). — VIII. RURAL WELFARE: Farm labour (France).

## I. UNITED NATIONS ORGANIZATION

### NETHERLANDS

The Decree of 1 March 1948 (*Stbl. No. 1-77, 25 March 1948*) orders publication in the 'Staatblad' of the Constitution of the Food and Agriculture Organization of the United Nations. The preamble of the Decree recalls that the Law of 6 June 1947 (*Stbl. No. H-167*) ratified the aforesaid Constitution; that it was signed by the Netherlands in Quebec on 16 October 1945, and that the said Constitution, the instrument of ratification of which has been deposited at Washington on 13 October 1947, came into force, in the Netherlands, on 16 October 1945. The Decree is followed by the text of the Constitution, in English and Dutch (translation), and a list of the Member nations of the Organization on 1 February 1948.

### SWITZERLAND

The Constitution of the Food and Agriculture Organization of the United Nations has been given official publication in Switzerland (*R. L. F., No. 12, 15 April 1948, p. 326*). A note specifies that the instrument of ratification was deposited on 19 February 1947, and that the publication also takes into account certain editing changes made in the

French text after the admission of Switzerland; and also of the amendments made by the FAO Conference to Article III, para 4, on 13 September 1946, and to Articles V and VII, on 11 September 1947. The publication is preceded (*Ibid.*, p. 325) by the text of the Federal Decree of 19 December 1946 relative to the admission of Switzerland to the Organization.

## II. NUTRITION

### (a) Cereals, flour, bread

#### FRANCE

A Decree of 28 February 1948 (*J. O., No. 55, 3 March 1948, p. 2219*) repeals the Decree dated 17 October 1947 relative to the baking and sale of bread (*see this Bulletin No. 4, p. 328*). The same Decree supersedes the provisions of Art. 3 of the Decree of 23 April 1947, by prohibiting the baking and sale of long loaves ('longuets'), 'grissini' and pretzels and rusks made by small bakeries. The baking and sale of rebaked bread ('pain biscotté') and the sale of bread for making rusks continue to be prohibited. The conditions governing the sale of factory-made rusks and special kinds of bread or bread for special diets will be specified by the monthly Decree fixing the amount of the rations.

## SWITZERLAND

Ordinance No. 51 of the Federal Department of Public Economy dated 20 March 1948 (*R. L. F.*, No. 10, 25 March 1948, p. 280) abolishes rationing of edible pastes.

Ordinance No. 196 of the Federal War Office for food supplies dated 20 March 1948 (*Ibid.*, p. 280) abolishes bread rationing. However, flour intended for human consumption and milled from wheat (white flour, semolina, semi-refined flour, whole-meal, special flours, etc.) is still rationed. The Cereal Supply Division decides the conditions regulating the delivery and purchase of flour.

Another Ordinance, No. 197, of the same Office dated 22 March 1948 (*Ibid.*, p. 281) carries the prescriptions relative to the compulsory delivery of home-grown bread grains. Cereals intended for direct supplies and for seed are exempted. Purchase and sale of standing crops require a written authorization from the Division. Article 5 prescribes a rational handling of cereals.

### (b) Meat

## BELGIUM

The Ministerial Decree of 11 February 1948 (*M. B.*, No. 45, 14 February 1948, p. 1179) specifies the conditions which must be fulfilled by persons desiring to obtain a licence for the retail sale of meat, butcher and pork-butcher products. These conditions mainly refer to hygiene standards. The person concerned must possess a refrigerator or ice-box. The applicant, butcher or pork butcher, will be required to prove that he has the requisite technical training: diploma from a technical school, apprenticeship certificate or an employer's testimonial of four years' service.

Another Ministerial Decree of 10 March 1948 (*M. B.*, No. 74, 14 March 1948, p. 2070) specifies that the preceding Decree applies solely to the retail sale of fresh and frozen meat, and to rapidly perishable meat products.

## LUXEMBOURG

Decree of 20 March 1948 (*M. L.*, No. 19, 24 March 1948, p. 426) lays down that meat, meat products and beef suet may be sold without ration coupons. The livestock and meat division will distribute stock to the butchers according to the average sales on the coupon system during the past twelve months.

The Ministerial Decree of 15 April 1948 (*M. L.*, No. 28, 28 April 1948, p. 651) prohibits the slaughtering of porklings (temporarily authorized by Decree of 19 December 1947). By porkling is intended any pig of a live weight under 60 kg.

## NETHERLANDS

The Decree of 9 February 1948 (*Stbl.* No. 1-48, 27 February 1948) again modifies the Decree of 5 June 1920 relative to the application of Articles 18 and 25 of the Law of 1919 on meat inspection. It also repeals various decrees passed during the occupation period by the Secretary General for Social Affairs, which were first suspended by the Royal Decree of 1944 relative to the measures taken during the occupation (*Stbl.*, No. E-93), and then reinforced by a Decree dated 25 March 1946. The main provisions now introduced into the aforesaid Decree of 5 June 1920 regard the slaughtering of animals, the inspection of dead or emergency killed animals; controlled retail sale, and the destruction of unusable meat and meat products. In *slaughtering*, the animals should first be stunned and then bled as rapidly as possible; exception is only allowed for slaughtering according to the Jewish law; and the Decree regulates the details of this slaughtering: specially authorized abattoirs according to the requirements of the community, specific number of animals; slaughtering operations; agreement between the religious heads and the veterinary inspectors. In the case of *dead or emergency killed stock*, the veterinary surgeon must examine the carcass for possible contagious disease. When cattle, sheep and other animals die suddenly without any special symptoms, a microscopic examination of the blood must be made, supplemented, in doubtful cases, by bacteriological and serological tests. *Conditionally approved* meat may be rendered suitable for consumption by sterilization, by refrigeration or salting; sold in small quantities under supervision. The method of sterilizing the bones is specified: splitting in small pieces and prolonged cooking in closed receptacles. Meat to be *sold in small quantities under supervision* must be sold under the control of veterinary surgeons, direct to the consumer, in pieces of 3 kg. at the most and within three days. Without constant and controlled refrigeration at 0°C., this period can only be extended 3 days by the veterinary surgeon, and the meat cannot be kept in stores, depots, etc. On no account may the meat be sold to dealers. The place of sale is decided by the burgomaster and his deputies; if necessary, the inspector may fix the locality in another commune. The *destruction of meat and unusable meat products* is generally effected in a special apparatus (destructor). Up to 1 June 1949, however, the Minister may exempt a commune from this rule, provided that the meat, properly cut, is destroyed by mixing with animal oils, lime, carbolic acid, etc. The Decree specifies that the inspector should be notified when a destructor is out of gear, and indicates the responsibility which devolves on the communes employing a destructor, in regard to the prevention of diseases, the transport of meat or other meat products, which require to be destroyed owing



to their unsuitability for consumption. The date of the coming into effect of the Decree is not fixed; it may vary according to the different provisions contained therein.

#### (c) Milk and cheese, eggs

##### BELGIUM

The Decree of the Regent dated 18 March 1948 (*M. B.*, No. 101, 10 April 1948, p. 2915) revokes the Royal Decrees of 30 May 1934 and 4 May 1936 relative to the export, import and storage of eggs. A Ministerial Decree of the same date (*Ibid.*, p. 2916) lays down the new rules applied.

The persons registered in the egg exporters register are recognized as authorized exporters. Before a person can be put on this register, he must have already been on the trade register and own equipment for grading, candling and packing in conformity with the standards laid down by the Minister of Agriculture. The Decree defined the conditions governing the eggs exported and included under one of the following categories; Belgian free shaggs, Belgian preserved eggs, Belgian cold-stored eggs, Belgian stabilized eggs. These eggs must be branded according to grade. The packing material to be employed is described and an inspection label must be attached. An inspection certificate will be presented to the customs. Hatching eggs can only be exported by special authorization of the Minister of Agriculture. Imported eggs must be stamped with the trade mark of their country of origin; exemption is allowed for eggs intended for re-exportation.

The Ministerial Decree of 22 April 1948 (*M. B.*, No. 117-118, 26 and 27 April 1948, p. 3448) repeals the regulations governing the compulsory delivery of dairy products. Another Decree of the same date (*Ibid.*, p. 3450) abolishes the rationing of domestic dairy products and regulates the supply of imported butter to consumers. The consumer must purchase imported butter from the dealer with whom he is registered. The Decree of the Regent of 24 April 1948 (*M. B.*, No. 119, 28 April 1948, p. 3474) suspends, in so far as regards butter, the subsidies granted in accordance with the government policy on food supplies. Ministerial Decree of 28 April 1948, (*M. B.*, No. 122, 1 May 1948, p. 3615) repeals the Ministerial Decrees regulating the prices of dairy products. Another Ministerial Decree of same date (*Ibid.*, p. 3616) however, retains price control over imported butter, cheeses and tinned milk.

Ministerial Decree dated 30 April 1948 (*Ibid.*, p. 3617) aims at promoting the production and consumption of grade milk. Milk producers are grouped into three categories. The requirements which the producers of the first category must fulfil

include effective participation in the official control of bovine tuberculosis by being a member of a control association recognized by the Department of Agriculture. The Decree defines the specifications for the different grades of milk. A trade mark has been devised in order to guarantee the origin and quality of the milk.

Another Ministerial Decree of 30 April 1948 (*Ibid.*, p. 3621) regulates the approval of undertakings for the preparation and processing of dairy products. This approval is granted by the Ministry of Agriculture and is subject to the following conditions: The applicant must (1) present guarantees in respect of ownership and hygiene; (2) dispose of suitable premises; (3) conform to the control and instructions of the Minister of Agriculture; (4) be exempt from convictions for infraction of the law in regard to dairying. Approval may be granted for a specific or indefinite period.

##### LUXEMBOURG

The Ministerial Decree of 15 March 1948 (*M. L.*, No. 19, 24 March 1948, p. 419) bears further provisions relative to butter control, superseding the provisions decreed in 1938. The most important measure is the establishment of a national trade mark for Luxembourg butter. This consists of a conventionalized rose placed between the words 'inspected' (on the left) 'by the State' (on the right). The Ministerial Decree of 18 March 1948 (*Ibid.*, p. 423) regulates the execution of butter appraisal as provided for in the preceding Decree.

The Decree of 20 March 1948 (*Ibid.*, p. 427) repeals the provisions regulating the rationing and utilization of fresh cream.

### III. AGRICULTURE

#### (a) Organization and improvement

##### FRANCE

A Decree of 17 April 1948 (*J. O.*, No. 98, 23 April 1948, p. 3962) provides for the establishment of a National Agricultural Board, charged with proposing to the Minister of Agriculture all measures tending to improve and propagate technical methods of agricultural production. To this end, the National Agricultural Board coordinates and submits to the Minister for approval, the programs of work financed from national funds for agricultural progress, and the projects for serving mutual interests presented to the Board by vocational, inter-vocational and administrative organizations which contribute towards the improvement of agricultural production. The Board also submits to the Minister of Agriculture a balance sheet indicating the amounts it considers should be allocated for carrying out the

programs of work drafted by the departmental agricultural boards. The Board decides each year the range of popularization work to be entrusted to the departmental agricultural boards according to the different programs approved by the Board and the means placed at their disposal.

The National Agricultural Board comprises two sections: the technical section and the section for distribution of funds.

### **(b) Relief and premiums**

#### **FRANCE**

In applying the Law of 18 July 1947 promoting the cultivation of wheat and rye by granting a premium per hectare for the 1947 and 1948 crops (see *this Bulletin*, No. 2, p. 162), a Decree of the Minister of Agriculture dated 5 March 1948 (*J. O.*, No. 58, 6 March 1948, p. 2352) prescribes that growers of wheat and rye shall be paid, by way of incentive for the 1948 crop, a sum of 1000 francs per hectare sown. Lists of the growers entitled to this premium will be drawn up by the chairmen of the crop collection boards or, in default of these, by the mayors. The lists should be signed by the growers concerned. Any grower convicted of having supplied inaccurate information will be debarred from the premium and will be liable to the penalties laid down by the law.

#### **ITALY**

By virtue of a Legislative Decree No. 1686 of 23 December 1947 (*G. U.*, No. 46, 24 February 1948, p. 628) which modifies Decree Law No. 1442 of 25 August 1938 bearing provisions relative to olive growing, the sums granted according to Art. 4 (2) of the said Decree for the planting of olive trees and grafts, may be paid in full after verification and approval by the provincial agricultural inspectors, without taking account of subsequent inspection of the outcome of planting and grafting.

### **(c) Compulsory loaning of farm material**

#### **POLAND**

Two Decrees of the Minister of Agriculture and Agrarian Reform, taken in conjunction with other competent Ministers, and dated 5 March 1948 (*D. U. R. P.*, No. 11, 11 March 1948, texts 88 and 89, pp. 270 and 272) concern respectively: the remuneration, estimated in cereals, for loans made to assist neighbours for farming operations, and the equivalent in money; and on the other hand, exemption from the said loans for certain categories of farm owners. Compulsory assistance between neighbours was regulated by Decree of 12 Septem-

ber 1947 (*D. U. R. P.*, No. 59, 17 September 1947, text 320, p. 982). This measure is imposed on all proprietors or usufructuaries, who are obliged to supply, by way of loan for which compensation is received, farm equipment and tools, animal teams, machines, means of transport, or to lend assistance in cultivation or harvesting operations, to growers who, lacking these resources, are unable to procure them. These loans, which cover a period of 14 days a year, are generally carried out in the same commune; the district council, however, may extend them to neighbouring communes. The communal councils, with the assistance of the Peasant Mutual Aid Union, decides and allocates the tasks to be done; the district councils establish the exact rate of indemnity or compensation. The Decree regulates the order of priority of the beneficiaries, and also the appeals to be presented, within 15 days, before the district council, according as necessary; appeals which are not deferred. The Decree prescribes the penalties attaining 6 months imprisonment, or a fine of 100,000 zloty, or both, in the case of those who do not properly fulfil their obligations in assisting other growers, and also of those charged with organizing this project who fail to do their duty. The validity of the Decree which remains in force until the end of 1949, may be extended 3 years by Decree of the Cabinet.

The first of the two new Decrees specifies the minimum and maximum extent of compensation allowed for the different types of assistance, in the case of farm operations: ploughing, harrowing, sowing, etc.; or loan of material: horses, teams, ploughs, tools, machines or carts, etc.

This assistance may be compensated by a certain quantity of rye, the most commonly grown cereal in Poland, but also by other cereals or even cash, calculated at the open market price, according as decided by the district councils. The said boards, on the proposal of the communes, will decide the exact extent of remuneration, as prescribed in the aforesaid Decree of 1947. In the case of recovered territories, the compensation figures specified in the Decree are reduced by 35 per cent. for tools and carts. The Decree came into effect on the date of its publication.

The second Decree of 1948, as already stated, exempts certain categories from loans and assistance. On the one hand, exemption from lending assistance may be had; this category includes, besides the heads of the communes, State forestry personnel which, as such, dispose of some land; disabled soldiers under certain circumstances; persons placed in a trying situation owing to mishap or illness; and lastly, those who, in the current or previous year, have taken over fallow land. On the other hand, the following are exempted from loaning livestock and farm implements: farms included in the fallow cultivation program, both farms possessing fallow land, and farms which will



be required to supply livestock in carrying out this program; owners of registered stallions or mares as regards these animals.

#### **(d) Concession of wasteland to peasants**

##### **ITALY**

A Legislative Decree No. 1718 of 27 December 1947 (*G. U.*, No. 50, 28 February 1948, p. 688) bears provisions integrating and interpreting the regulations in force relative to the concession of wasteland to peasants. By the terms of this Legislative Decree, the application for the concession of wasteland or land inadequately cultivated according to the provisions of Legislative Decrees No. 279 of 19 October 1944, No. 597 of 26 April 1946 and No. 89 of 6 September 1946, can only be accepted if presented before 1 January or after 31 May preceding the onset of the crop year from which the petitioning association intends to have the concession begin. This disposition does not apply to applications presented prior to the date when the Legislative Decree became operative, and regarding which the competent Commission has not yet made known its decision.

A Legislative Decree No. 114 of 24 February 1948 (*G. U.*, No. 61, 12 March 1948, p. 860) bears measures in favour of the small peasant holding. By the terms of this Law the purchase, sale and long term lease of land effected within two years from the date of the Law becoming operative, are subject to a registration and mortgage tax reduced by 50 per cent. provided that: (a) the purchaser or long term tenant whose habitual work is the cultivation of the land; (b) the purchaser or long term tenant is not the owner of other land, unless the purchase of the land in question is effected with a view to supplementing the holding owned which is insufficient to employ all the family labour available; (c) the land sold or conceded on long lease is suitable for splitting up into smallholdings, taking into account the crops to be grown and the assessable cadastral value; (d) the purchaser or long term tenant has not sold other land during the two years preceding the date of the contract. The same provisions are applied to leases and to sharecropping contracts with partial cession of the ownership of the land to the lessee or to the sharecropper, under the conditions indicated above.

Loans may granted to the purchasers referred to above in conformity with the provisions of Law No. 1760 of 5 July 1938. State contribution to the payment of the interest on these loans has been increased to a maximum of 3 per cent.

Purchase by legally set up cooperative associations composed entirely of farm workers, and also the sharing of land between the said members, are subject to a fixed registration fee and mortgage tax provided that the area of the land assigned to

each member is not larger than a small peasant holding.

Settlement organizations and land reclamation consortia are authorized to attend to the purchase, allocation and sale of land to personal operators and to their cooperative associations enjoying the benefits granted according to the terms of this Law. These bodies may be authorized to institute the expropriation of estates subject to reclamation, in consequence of the non-execution of the obligations incumbent upon the owners.

The State, provinces and communes are authorized to sell, by private auction, to the persons and organizations indicated above, land of their respective property, to be divided into peasant holdings according as laid down by the Law. Penalties are imposed on purchasers who voluntarily transfer the land purchased or cease, without any justifiable reason, cultivating this land personally.

A credit of 5 milliard lire has been allocated: 3 milliard to increase the fund to pay off the interest on loans for improvement work, and 2 milliard for subsidies granted for improvements made on land purchased according to the terms of the Law.

#### **(e) Land reclamation**

##### **ITALY**

Law No. 1629 of 31 December 1947 (*G. U.*, No. 30, 6 February 1948, p. 409) classifies the territory of the Sila plateau among the second category reclamation districts ('comprenditori'). A special organization ('Opera per la valorizzazione della Sila') has been set up with a view to developing this region by incentive measures or by direct land and agricultural modification of the plateau taking into account its woodland and pastoral characteristics. The objectives of this organization also include the promotion of industry and pleasure travelling. This body, which enjoys legal status and which is under the control and protection of the Ministry of Agriculture and Forests, is charged with: (a) drafting a general plan for the agricultural modification of the reclamation district and proposing the minimum obligations incumbent upon the owners within certain limits; (b) carrying out, by concession or tender, public reclamation works as anticipated in the general plan; (c) executing work indispensable for modification projects and settling of a general character or of mutual interest to several proprietors; (d) giving technical and financial assistance to proprietors in carrying out the work at their expense and in improving agricultural and zootechnical production; (e) promoting and assisting technically and financially the peasant cooperatives which cultivate or intend to cultivate direct the land in the reclamation district; (f) effecting direct the modification and improvement of land of which this body acquires ownership

or possession, giving, if possible, priority to land under joint ownership; (g) facilitating by every possible means the transformation and development of the land; (h) fostering the development of industry and touring in the region.

#### (f) Rice-growing

##### PORTUGAL

Decree Law No. 36.746 of 9 February 1948 (*D. d. G., 1st Series, No. 32, 9 February 1948, p. 109*) promulgates provisions relative to rice cultivation. This Decree Law comes nine years after the Decree of 4 April 1939 concerning rice-growing. The object of the Decree is to remove restrictions save for certain zones: the *protection zones*, to check malaria, already in existence, and the *limited zones* established by the Decree. In the first mentioned zones, rice cultivation is prohibited; however, it may be permitted provisionally in marshy areas. In the second, where, from the health standpoint, rice cultivation is not strictly prohibited, the opening up of new rice-fields requires the authorization of the Department of Agricultural Services. Many of the provisions apply to both zones. These zones generally take the form of a belt 1 to 3 km. wide, surrounding the localities in question; they may also include the entire territory of some districts or municipalities. Protection zones may also be established around medical assistance stations or touring centres. An appendix to the Decree Law lists the protection and limited zones: these lists may subsequently be modified. The Decree Law gives details on the setting up of the different zones, their delimitation and demarcation up to 31 May of each year by the Department of Agricultural Services, on the proposal of the Health Office. The breadth of the belts in question may be increased or diminished, and should as far as possible, follow the natural contours. The marshy areas for provisional cultivation (in the protection zones) will be specified. Proposals regarding the establishment, etc. of protection zones will be based on the investigations carried out by the anti-malaria station, and the agricultural station or technical detachment, etc.; investigations on both the existence and extent of outbreak centres of disease and on crop possibilities. On the other hand, the Decree Law regulates in detail all matters concerning applications for opening new rice-fields or extending present fields in the limited zones, applications which should be presented between 1 July and 30 September to the Department of Agricultural Services, direct or indirectly, by proprietors or usufructuaries of land: name of the interested party, name and location of the property, area and distance from other localities, source of water utilized, catchment basin, irrigation system, nature of the ground and exposure to flooding. A decision

is taken after an investigation following inspection. The details which this investigation should cover in regard to soil, possibility of cultivation, anopheles breeding centres, condition of the ditches and canals, housing facilities for the workers, are specified. The decision is notified before 31 December, and can be appealed to the Minister of Economic Affairs prior to 15 January following. The Rice Trade Control Board and the Health Office are notified of the permits granted. The said Board is instructed to supplement the compiling of the cadastral register of rice cultivation, including provisional fields in marshy areas, already mentioned, and new fields in the limited zones, and to send a copy of this register to the Department of Agricultural Services. Landowners are responsible for the maintenance of the cadastral indicators, boundary marks of the zones, etc.

Section II deals with the housing and health of the workers. In all rice-growing farms, the fitting of wire gauze and other protective means to workers' quarters is compulsory. The two bureaux concerned (agricultural services and health) are commissioned to plan new buildings or adjustments. These buildings or improvements will not entail, for 10 years, any increase in taxable income. The rice-growers are required to notify the regional anti-malaria stations of the number and provenance of their workers. Children under 10 years of age cannot accompany groups of seasonal workers.

Section III treats on general and penalty dispositions. Growers are required to comply with the instructions of the Department of Agricultural Services in regard to the control of anopheles larvae, preparation of the land, condition of ditches and canals. These measures must not inflict loss on other crops. Rice grown without a permit will be destroyed; the penalty is a fine of 5,000 escudos per hectare or part of hectare, barring destruction by the grower himself, with seizure and sale of the crop. Infractions of the health dispositions, indicated above, relative to cultivation or housing, will be punished by a fine of 3,000 escudos per ha. or part of ha.; in other cases (provisions regarding notification of workers and their age), the fine varies from 500 to 1000 escudos. The proprietors are responsible for maintaining the boundary marks and, in the event of infraction, must pay the cost of replacing same, plus a fine of 500 escudos for every boundary-mark.

#### (g) Seed potatoes

##### PORTUGAL

Decree Law No. 36.665 of 10 December 1947 (*D. d. G., 1st Series, No. 286, 10 December 1947, p. 1297*) bears further provisions relative to the breeding, production and importation of seed potatoes. The importance of this product in the



mountain regions in the north of the country, and its value for national economy, justified State intervention. Legislation had already been passed on promoting and regulating production and marketing, aiming at improving the quality — the main objective — and then increasing production. The present Decree Law concerns both home-produced and the imported potatoes. In both cases, the certificates on type of seed, purity, etc. (which do not dispense with the certificates of origin and condition) must be numbered and indicate: the name of the crop inspection and selection services; the place or region of origin; the name of the variety; and category, if there are categories in the country of origin. For the imported product, the Ministry for Economic Affairs must have legally recognized, by decree, the official services of the exporting country (their type of certificate and seal). All other potatoes will be considered as potatoes for consumption.

National seed potato production will be developed in the regions approved by decree. The agricultural 'gremios' of these regions will be required to set up specialized production cooperatives or special sections which will only be authorized if not already operating in the region of specialized cooperatives. (If already in operation, their statutes will have to be adjusted). The activity of these groups will be directed by the Department of Agricultural Services for technical and administrative questions, and by the Fruit Junta as regards commercial matters. The aforesaid Department will fix the quantities and varieties to be produced, and will receive the obligatory registrations of growers, who will be required to register annually their respective fields at their cooperative or 'gremio'. Each season the Department and the Junta will notify the rules to be followed as regards grading of the product and inspection. Crops will be inspected at the request of the cooperatives or 'gremios'. The specialized cooperatives, or 'gremios' (their special sections) will furnish seed to growers who are short, and grant direct credit covered by a crop surety on the ensiled product, up to 50 per cent. of its value or of other products offered as guarantee. The said groups may also receive for this purpose, with the authorization of the Minister, loans from the General Deposit Fund. The Decree Law specifies in detail the duties of the aforesaid cooperatives (or 'gremio' sections) which include selling the product and transport to the markets, the building of silos and storehouses, the purchase by contract of the seed required by the members; propaganda and protection work; price fixing; execution of instructions given by the authorities.

In regard to importation, the Department of Agricultural Services will publish, and keep up to date, the list of authorized varieties. By request and after investigation, new varieties may be included.

The quantity and varieties to be imported will be decided by the Minister, on the proposal of the Fruit Junta, on the recommendation of the aforesaid Department. Imports will be effected either direct by the producer groups, or by the import dealers authorized by the Junta, which will be required to collaborate with the said groups, with a view to selling the national product. The imported product must be packed in unused and strong containers, with the seal of the official Services of the country of origin, the certificate being placed on the top. Similar conditions are to apply to the domestic product. An import tax of 0.95 escudo will be levied on every kilogram and will be used by the Department for an incentive and technical inspection fund.

Among the other provisions of the Decree Law, it should be noted that seed potatoes produced in the country can only be put on the market (or direct in production) through the aforesaid producer groups. Trade will be regulated by decision of the Minister, according to the proposals of the Fruit Junta. Private advertising by growers in order to sell consignments grown by themselves or by third parties, is prohibited; table potatoes must not be called or sold as 'seed potatoes'. The Junta, after consulting the Department, will fix the maximum sale price. Infractions of this law by growers or dealers, or by their agents, are punishable by a fine of 1,000 to 25,000 escudos, for the first offence, and a double fine for the second offence.

#### (h) Seed-testing

##### FINLAND

A Resolution of the Cabinet, No. 191 of 11 March 1948 (*F. F.*, No. 184-192, 13 March 1948, p. 347) bears further provisions based on those of Decree dated 12 December 1947 relative to the Seed-testing Institute, with a view to establishing the fees to be paid for analyses carried out by the aforesaid State Institute.

There are three types of testing, namely: purity and germinating power together, purity or germinating power alone. The seed submitted for testing are divided into groups. The first group includes vegetables, e.g., cabbage, cucumber, asparagus, chicory, onions, tomatoes, etc., and the second group, clover, beets, hemp, flax, etc.

The Institute also tests seed potatoes with a view to ascertaining their germinating power, percentage of attached soil, etc.

The Resolution of 11 March also bears provisions relative to official certificates and the sealing of tested products.

#### (i) Farm contracts

##### BELGIUM

The Law of 31 March 1948 (*M. B.*, No. 101, 10 April 1948, p. 2896) provisionally regulates the obligations entailed in terminating farming leases.

The obligations of notice given in regard to farming leases and which have not been fulfilled, are suspended until a date which will be fixed by Royal Decree (save renunciation by the lessee). This provision, however, is subordinate to the lessee carrying out all his obligations to the lessor. The cases where farmers do not benefit from this suspension are indicated.

## ITALY

Legislative Decree No. 82 of 19 February 1948 (*G. U.*, No. 51, 1 March) relative to farm leases, modifies the legislative dispositions decreed by Laws No. 277 of 1 April, No. 495 of 27 May and No. 975 of 12 August 1947. This Decree establishes, *inter alia*, that 1944-45 and 1945-46 crop years should be considered as those which start during the period 1 January-1 March 1945 and 1946 respectively, if the lease begins at this date according to local custom. As regards the 1946-47 crop year, this provision applies not only to leases stipulated by personal operators, but also to leases on a *métayage*, share-tenancy or share-cropping basis, in so far as concerns the extension of time accorded by Legislative Decree No. 273 of 1 April 1947.

### (j) Farm machinery

## FINLAND

The Government by decision of the Ministry of Agriculture of 18 February 1948 (*F. F.*, No. 129-149, p. 258), aiming at assisting the farmers, has allocated a credit of 40,000,000 marks for the purchase of farm machines costing over 10,000 marks and intended for cooperative use in farming.

This credit is for the benefit of small farmers, experiment stations, agricultural associations and cooperatives, attached to central organizations, with at least 3/4 of the members being practical farmers who possess or hold at least 13 hectares of land.

The State grant will first be accorded to the associations indicated above, in the case of particularly impoverished regions; however, the State subsidy is not to exceed 25 per cent. of the price of the machines. Under no circumstances can this subsidy be employed in repaying previously contracted loans.

The Agriculture Board decides the periods during which applications for loans may be presented; the subsidy is paid to the interested parties by the association or organization to which they addressed their application.

The recipients of the subsidy in question must undertake to employ the machine acquired for farming purposes for a period of 5 years, to the benefit of the members of the organization of which they are members, otherwise the subsidy will have to be reimbursed to the State within six months.

The agricultural and domestic economy associations as well as the central organizations of small farmers will supervise the use of the credit thus granted.

A Resolution of the Ministry of Agriculture, No. 183 of 4 March 1948 (*F. F.*, No. 181-183, p. 339) bears the regulations for the State Farm Machinery Experiment Station. The Resolution defines the object and functions of the aforesaid Institute, that is, promoting the mechanization of agriculture, and also horticulture, forestry, fishery and domestic economy. Consequently, the primary object of the Institute is to test the farm machines (and spare parts) put on the market. Secondly, the Institute acts as technical expert for all questions regarding farm machines, and also follows the progress made in agricultural mechanization in other countries, at the same time controlling the importation of farm machines.

A committee appointed by the Agriculture Board directs the experiments to be carried out by the Institute.

Special provisions specify the work of the Institute, the procedure to be followed for the delivery of machines, or parts of machines, to the Institute, for testing, etc.

The examination of agricultural machines, incumbent on the Experiment Institute, comprises technical examination and improvement of machine and tool material, their quality, construction, solidity and efficiency.

### (k) Agricultural credit

## CZECHOSLOVAKIA

The Law of 21 March 1948 relates to agricultural credit (*Sb. z. n.*, No. 20, 10 April 1948, text 43, p. 417). Loans, guaranteed by the State, may be granted to agriculturists and to other persons engaged in setting up plants for agricultural purposes, in connection with the agricultural production plan, such as the development of motorization, preservation of agricultural produce, raising the standard of rural living. By agriculturist, the law intends a person who cultivates, in various capacities, arable or forest land up to 50 ha. in area; or who, owing to illness or advanced age, etc., has been obliged to lease this land; or else a production cooperative, consisting mainly of members whose chief occupation is direct farming or an activity linked with agriculture; or land stewards. Agricultural credit comprises: *short term credit* or farm credit intended for the running expenses of the farm; it is repayable at the end of the year at the latest, and given in the form of a draft valid for not more than 6 months (and which can be rediscounted) and marked 'agricultural draft'. *Long term credit* is allocated for reconstruction work to repair the damage caused through the war or enemy occupation, or



for investments such as motorization, farm improvements, land or other purchases, land consolidation; or for paying debts of farmers not incurred through their fault. All these cases imply that the interested party does not dispose of the necessary resources, and that he cannot procure them elsewhere to better advantage. Long term credit, granted on the basis of a recognized debt, is repayable within a period of 5 to 40 years, according to a standard plan. Redemption before due date is possible. The annual interest, which may be modified by decree, amounts to 3 1/2 per cent. for short term credit and to 3 per cent. for long term drafts; an annual payment of 1/4 to 3/4 per cent., according to circumstances, is added for allocation to the reinsurance fund. The Minister of Finance, in agreement with the Ministers of Agriculture and the Interior, will nominate the financial undertakings which will grant agricultural credit (including the agricultural credit cooperatives), as well as the central body which will have the responsibility and control of this credit, and will issue instructions on all matters concerning this credit: admissible debts, due allowance being made for the size and output of the enterprise; other real and personal circumstances, terms and conditions of reimbursement, utilization of different resources in reconstruction. The Minister of Agriculture, in conjunction with the Minister of Finance, is authorized to give State guarantee, by virtue of which the Minister, represented by the Ministry of Agriculture, takes the place of the debtor if the creditor is not fully reimbursed after enforcement or if he otherwise proves that he cannot be repaid. The instances where this guarantee ceases to have effect are stated. Enforcement can only be effected if the Fund agrees, or if it has refused aid to the debtor. Long term credit should be covered, before guarantee by the State, by a mortgage on property of the debtor, or placed under administration; the restrictions which the law may impose as regards enforcement or further charges will be inscribed; in effect, only in certain cases can property be mortgaged a second time.

The Law sets up, attached to the Ministry of Agriculture, the Agricultural Reinsurance Fund, an autonomous legal entity, for which the Minister of Agriculture, in conjunction with the Minister of Finance, will draw up the Statute and rules, and will appoint the Board. The Vice-Chairman represents the Minister of Finance. The Board also comprises the representatives of the Ministry of Agriculture, the agricultural Office for Slovakia, and the Central Farmers' Committee. A Government commissary and the representative of the Ministry of Agriculture supervise the activity of the Fund. The resources of the Fund consist of a contribution of 100 million crowns; if necessary, annual State contributions up to 75 million will be granted. The

Fund may undertake to repay in full or in part, short term credit or annual instalments when, for various reasons enumerated in the Law and independent of the will of the debtor, the said debtor is unable to pay. The debtor is required to reimburse the Fund as soon as possible; but this obligation is barred at the end of 10 years.

The district agricultural credit Boards, attached to the People's Committees for districts and some towns, whose functions are to examine whether — and to what extent — effect can be given to applications for agricultural credit and assistance addressed to the aforesaid Fund, are each composed of 4 members: the Chairman of the said People's Committee or his agricultural deputy; a member of the board of the same Committee, in charge of agricultural affairs; a representative of the Farmers' Union and a representative of the finance department, appointed by the respective Ministers, and deputies. The discussions are attended, in an advisory capacity, by the district agricultural expert and a specialist on credit matters, appointed by the Chairman of the Board, assisted if necessary by a delegate of the Committee of the respective commune. The Boards, to which the Minister of Finance, in conjunction with his competent colleagues, will issue directives, examine the applications for credit and decide the eventual amount of the loan. When a loan is necessary, the Boards send their justified proposals through the central finance Institute to the Ministry of Agriculture, indicating the institution or undertaking which agrees to make this loan, or which they advise choosing, in order that, for example, a long term debtor may be indebted to one institution only.

The same steps are taken in regard to applications made to the Fund. Through the intermediary of the agricultural expert, the Boards supervise the economic activity of the debtors, and take note, on their part, of all matters concerning agricultural credit.

If a district Board rejects an application as above, the applicant may, within 15 days, appeal before a permanent arbitration Commission, attached to the Ministry of Agriculture, and which, after investigation, will give a decision. The Ministries of Agriculture and Finance, the Fund and the permanent Commission will notify each other and other authorities of their decisions relative to State guarantee, appeals, payments to the Fund, etc.

## FRANCE

Special provisions of Law No. 48-466 of 21 March 1948 (*J. O.*, No. 72, 22 and 23 March 1948, p. 2843) relative to the opening of credit and authorization to undertake expenditure (civil reconstruction and equipment expenditure) in the general budget and appended budgets for the budgetary year 1948, concern the financing of agricultural credit operations.

By Article 16 of the Law, the maximum amount advanced by the State to the 'Caisse nationale de Crédit agricole', by virtue of the Law of 2 August 1923 facilitating by State loans the distribution of electric power in the rural districts, has been raised from 1,200 to 1,400 million francs. By Article 17, the maximum amount advanced by the State to the same 'Caisse nationale', by virtue of Decree Law of 17 June 1938 relative to the concession of mutual agricultural credit loans to communes and to groups of communes for rural equipment work, has been raised from 1 milliard to 1 milliard 500 million francs. The maximum loan which can be granted to each commune concerned has been increased to 2,500,000 francs.

By Article 18, the financing of loans for work concerning improved rural housing, provided for by Decree Law of 24 May 1938 and by the ratified Law of 15 May 1941, has been raised from 250 to 300 million francs. By Article 19, the maximum amount advanced by the State to the 'Caisse nationale de Crédit agricole', by virtue of para 1 of Art. 17 of the Ordinance dated 20 October 1945, relative to the granting of mutual agricultural credit loans to farmers and rural craftsmen, repatriated prisoners and former displaced persons, has been increased from 1,750 million to 2,250 million francs.

By Article 20, the financing of loans for setting up young farmers by virtue of the Law dated 24 May 1946, has been raised from 1,500 million to 2,750 million francs. Likewise, the financing of individual and collective long-term loans has been raised from 2,500 million to 4,500 million francs by Article 21, which prescribes that of the said amount a maximum of 2 milliard can be employed for granting individual loans. These loans do not exceed 700,000 francs excluding costs.

Lastly, the State is authorized by Article 23 of the Law to advance the 'Caisse nationale de Crédit agricole' a maximum of 200 million francs, for the purpose of granting to wine-growers who have suffered non-insurable losses, special medium term loans under the conditions prescribed by the Decree of 29 June 1940.

## (b) Phytosanitary control

### BELGIUM

The Decree of the Regent dated 2 March 1948 (*M. B.*, No. 88, 28 March 1948, p. 2537) sets up at the Ministry of Agriculture a National Committee of Phytopharmacy with the function of proposing the initiatives and measures which should be taken in regard to the control of crop pests and diseases.

### FRANCE

As a plant protection measure, the Decree of 18 March (*J. O.*, No. 73, 24 March 1948, p. 2918) prohibits the import into France, from all coun-

tries, of conifer wood, unhewn or sawn, when entirely or partly covered with bark, and also bark debris of this wood.

A Decree of 15 April 1948 (*J. O.*, No. 96, 21 April 1948, p. 3906) authorizes the establishment of custom-houses at Saint Malo and Perthuis for the importation of plant products subject to compulsory phytosanitary control.

Decree of 15 April 1948 (*J. O.*, No. 97, 22 April 1948, p. 3940) modifies and supplements list *B* appended to the Decree dated 1 August 1946 relative to the control of crop animal and vegetal parasites. The additions refer to forest parasites, the control of which is assigned by decree to the woods and forest rangers.

### LUXEMBOURG

The Ministerial Decree of 20 April 1948 (*M. L.*, No. 28, 28 April 1948, p. 651) concerns the measures to be taken against the invasion and spread of the bark beetle. These measures, which will be undertaken by the Woods and Forests Department, will consist mainly in felling the conifers attacked or menaced by this pest. Stripping and burning or removal of the bark and branches may be ordered. The Woods and Forests Department, as soon as attack is noted, will send, by registered letter, a notice to the proprietor concerned, instructing him to carry out the necessary measures within the proper time.

## (m) Stockbreeding

### BELGIUM

The Ministerial Decree of 25 March 1948 (*M. B.* No. 92, 1 April 1948, p. 2614) regulates the organization of artificial insemination of cattle. Each province will have a 'Provincial Artificial Insemination Committee'. This Committee will include, State veterinary inspectors and State advisers on animal husbandry who officiate in the province, and also delegates of federations or associations for stockbreeding and the control of stock diseases. These committees will set up 'artificial insemination centres' for the collection and preparation of semen to be used in artificial insemination. These committees will operate under the control of the Minister of Agriculture. There will also be a National Artificial Insemination Committee for cattle with the function of advising the Minister on the proper technical execution of the method and on the working of the insemination organization.

### FRANCE

Decree No. 48-599 of 27 March 1948 (*J. O.*, No. 80, 2 April 1948, p. 3184) bears the public administration regulations for the application of Law No. 46-1055 of 15 May 1946, relative to the artificial insemination of domestic animals, partic-



ularly in regard to the conditions governing the granting of licences required for practising artificial insemination.

The artificial insemination centres where the semen of domestic animals is collected for the insemination of female animals not belonging to the farms of these centres, can only operate with the authorization of the Minister of Agriculture. This authorization can be revoked if the Advisory Stock-breeding Committee so advises. The decision to withdraw authorization must be justified.

The Minister of Agriculture decides the conditions governing the operating of the centre; if necessary, he determines the region, outside of which, save a special waiver, the sperm collected at the centre should not be utilized.

No one can direct the technical operations of one of these centres unless authorized by the Minister of Agriculture after a practical examination. Likewise, no one can carry out artificial insemination operations on animals outside his own farm, unless provided with a insemination operator licence granted by the Minister of Agriculture after practical examination. The centre managers and operators can only do insemination work on the animal breeds mentioned in the permits or licences.

The sires whose sperm is employed for artificial insemination should be free from all transmissible diseases, complaint, fault or defect making this use undesirable; they should have the regular characteristics specified for each breed and for each centre; and should have been approved by the Minister of Agriculture. This approval can be withdrawn if considered advisable by the stockbreeding advisory board.

The Minister of Agriculture supervises the artificial insemination centres, their personnel and the operators. In the provinces, this supervision is effected by chief engineers, directors of agricultural services, assisted by stud-farm officials and, for hygiene, the departmental directors of the veterinary services.

The Minister of Agriculture is authorized to determine, by decrees, if necessary, the detailed terms and conditions relative to the application of the Decree.

## ITALY

Legislative Decree No. 1671 of 23 December 1947 (*G. U.*, No. 43, 20 February 1948, p. 582) bearing provisions in favour of poultry and rabbit husbandry, authorizes the Ministry of Agriculture and Forests to elaborate and have executed a special working program, aiming at re-organizing and augmenting national poultry production in conformity with its directives and under its supervision. The aforesaid program contemplates the adoption of special measures relative to: (a) the re-organization of poultry enterprises; (b) the study of rural poultry

breeding; (c) the distribution of pedigree stock adapted to the special conditions of rural poultry breeding; (d) improvement in technical equipment and the management of rural poultry houses; (e) control of the production of poultry for breeding; (f) assistance to poultry organizations; (g) fostering of all initiative deemed useful for poultry production. Similar measures are contemplated for promoting the breeding of rabbits and fur-bearing animals.

A Legislative Decree of 19 February 1948 (*G. U.*, No. 55, 5 March 1948, p. 770) repeals Legislative Decree No. 1171 of 29 October 1947, concerning, *inter alia*, the restrictions governing the slaughtering of hogs for family consumption.

## LUXEMBOURG

Ministerial Decree of 12 March 1948 (*M. L.*, No. 19, 24 March 1948, p. 410) regards the pasturing of cattle of Luxembourg origin in Belgian territory. Those concerned are required to present written applications to the Ministry of Agriculture together with a certificate from the relative Luxembourg communal authority testifying that the applicant owns cattle-pens in Belgium, and with a list of the cattle. Before entering Belgian territory, the animals must be vaccinated against foot-and-mouth disease. On their return, a health certificate delivered by a recognized Belgian veterinary surgeon must be presented. The outgoing permit must be consigned to the frontier guards when the stock return. Only in exceptional cases can Luxembourg farmers and renters of Belgian pasture obtain a transit permit.

## SWITZERLAND

An Ordinance of the Federal War Office for food supplies dated 25 March 1948 (*R. I. F.*, No. 11, 1 April 1948, p. 311) repeals the Ordinance of 20 April 1943 relative to ensilage and to the use of ensiled products, while another Ordinance of the same date (*Ibid.*, p. 312), issued by the Dairy Section, adds further provisions regarding ensilage. In the interest of the production and normal utilization of milk, the dairy and cheese associations will be classed according to the zone where ensilage is authorized or to the zone where it is prohibited. The ensilage zone includes the associations which produce milk exclusively for consumption or butter-making, or for other products where there is no danger of ensiled forage affecting the quality. The prohibited zones comprise plants for Emmenthal, Gruyère, Sbrinz, Tilsit and other cheeses. Ensiled forages will be controlled and Art. 11 prescribes that they should only be given to cows after milking.

## (n) Livestock diseases

### LUXEMBOURG

The Ministerial Decree of 17 March 1948 on the health inspection of dairy cattle (*M. L., No. 19, 24 March 1948, p. 425*) is based on the necessity of immediately taking appropriate measures to check the danger of tuberculosis spreading by establishing a more effective health inspection of dairy cattle. Stock-owners who sell milk or dairy products will be required to submit their cattle to a health inspection twice a year. In the case of open tuberculosis, the animal will be automatically slaughtered; with clinically proved concealed tuberculosis, the animal cannot change ownership unless intended for the abattoir. The competent veterinary surgeon will determine the means of utilizing these animals. The stockowner will notify the veterinary inspector of delivery to the abattoir.

## IV. ECONOMIC AFFAIRS AND MARKETS

### (a) Economic projects

#### CZECHOSLOVAKIA

The Decree of 8 December 1947 (*Sb. z. n., No. 106 31 December 1947, text 231, p. 1698*) again regulates certain measures contemplated in the two-year economic plan.

Mention should first be made of the previous chief measures, relative to the two-year Economic Plan, laid down for 1947-48. The first according to date and the most important was the Law of 25 October 1946 (*Sb. z. n., No. 84, 29 October 1946, text 192, p. 1195*) concerning the two-year economic plan. The said Plan covers, for the period in question, industry, building, agriculture, transport, investments, workers, etc. It fixes, mainly for 1948, the production figures for the principal products, machines, etc.; the Law also comprises the dispositions regarding the accomplishment and supervision of the Plan. This Law was followed by the Decree of 13 February 1947 (*Sb. z. n., No. 13, 4 March 1947, text 27, p. 173*) on the penal protection of the execution of the economic Plan; the Decree dated 20 February 1947 (*Ibid., text 28, p. 174*) relative to the distribution of the work entailed in the economic plan, among the agricultural enterprises and cattle, hog and poultry breeders, for the economic year 1946-47; and a similar Decree of 7 October 1947 (*Sb. z. n., No. 89, 17 November 1947, text 189 p. 933*) for the economic year 1947-48; and lastly the above-mentioned Decree of 9 December 1947.

The last-mentioned Decree lays down that the operations assigned by the Law on the economic plan, in the different branches, should be modified in consequence of the unusual economic condi-

tions and poor 1947 harvest, which altered the program of the original plan. The Decree also assigns, for 1948, different production figures for the chief mining, industrial, agricultural products, machines, etc. Comparing these with the early figures for the same year, in general, a more or less appreciable reduction in agricultural produce is seen. Thus in 1948, wheat production is to amount to 1,444,826 tons (instead of 1,484,600); rye and maslin, 1,172,695 tons (instead of 1,187,100); potatoes, 8,001,831 tons (instead of 8,781,600); milk, 21,715,000 hl. (instead of 32,359,000); beef and pork, 300,100 tons (instead of 426,700); eggs, 920 million (instead of 1,172,100,000); oilseeds, 48,011 tons (instead of 165,000 tons); lard, 21,120 tons (instead of 53,300); malt 109,000 tons (instead of 268,000); beer 8,000,000 hl. (instead of 8,600,000 etc.; phosphate fertilizers, 314,165 tons (instead of 380,000); nitrogenous fertilizers, 146,820 tons (instead of 220,000). On the other hand, for machinery output, etc., the figures have been increased. Thus, the Decree prescribes, for instance; tillage machines, 102,844 (instead of 80,000); seed-drills and planting-machines, 16,100 (instead of 10,000); harvesters, 49,607 (instead of 24,000); processing machines, 11,467 (instead of 8,000), etc.

### (b) Price control

#### FINLAND

A Resolution of the Ministry of Supplies No. 142 of 14 February 1948 (*F. F. No. 142-147, 23 February 1948, p. 261*) repeals the Resolution of 23 July 1947 relative to the prices of certain edible fats.

A Resolution of the Ministry of Supplies No. 162 of 24 February 1948 (*F. F., No. 159-162, 2 March 1948, p. 312*), fixes the maximum price for malted barley as follows: in the case of direct sale from the malt-house, the price is fixed at 23.50 marks per kg. for crushed brewer's barley, and at 23.25 marks per kg. for malt intended for beverages. In wholesale trade these prices are respectively 24.35 and 24.10 marks, and, for retail sale 28 and 27.50 marks.

A Resolution of the Ministry of Supplies No. 199 of 6 March 1948 (*F. F., No. 199-202, 15 March 1948, p. 367*), supplements the provisions decreed by the Resolution No. 842 of 21 November 1947 (*F. F., No. 842-847, 29 November 1947, p. 1322*), relative to the prices of cereals intended for sowing, peas and malted barley. These provisions specifically concern seed intended for oat-seed mixtures. The maximum price of one kilogram of seed employed in oat-seed mixtures to be paid to growers for produce delivered to the State organization for supplies, will henceforth be 13 marks, provided, of course, that the product in question meets the requirements of the Ministry of Agriculture. In the



case of seed considered suitable for sale, the prices are fixed respectively at 15.50 and 16.25 marks per kilogram.

The Finnish Government, always with a view to keeping strict control over the prices of agricultural produce, by Resolution of the Cabinet No. 224 of 18 March 1948 (*F. F.*, No. 224-227, 23 March 1948 p. 395) has fixed the prices of certain spring seeds from the 1948 crop.

The State organization for cereal supplies effects its purchases from growers with whom it has made a contract, or else who will have concluded contracts with trade undertakings nominated by the Ministry, for the purchasing of seed-corn, the object of these contracts being to ensure the cultivation of certain specific varieties of spring grain, provided that they meet the requisite conditions. The Resolution specifies these varieties. It behoves the Ministry of Supplies to fix the prices to be paid growers for the kind of seed grown without special contracts having been stipulated for delivery.

## FRANCE

With a view to supporting the purchasing power of consumers and agricultural utilizers, a Decree dated 31 March 1948 (*J. O.*, No. 79, 1 April 1948, p. 3135) establishes certain reductions in prices of products and services interesting agriculturists. Among the commodities, a reduction has been made in the selling price of coal, electric light rates, firewood, wool fabrics, ready-made clothing, knitting wool, footwear. Reductions are being contemplated for laundering, dry-cleaning, etc. In regard to farm equipment, reductions have been made in the prices of agricultural machines, farming tools wire, ground basic slag, in bulk, per minimum carload of 20 tons sent direct from the producing plant, sulphurs for industrial and farm uses, potassic fertilizers, etc.

For the application of the above Decree, two Decrees, dated 6 April 1948 (*J. O.*, No. 84, 7 April 1948, p. 3422 and 3423) have been passed in order to fix the reductions in price of industrial and agricultural sulphurs and potassic fertilizers and certain mixed fertilizers.

### (e) Agreements and conventions, control of foreign trade

## BELGIUM

Ministerial Decree of 26 April 1948 (*M. B.*, No. 121, 30 April 1948, p. 3559) repeals the Decree dated 12 December 1946 relative to the declaring of probable imports.

## FRANCE

Decree of 14 February 1948 (*J. O.*, No. 57, 5 March 1948, p. 2310) prohibits exports abroad of grapes, musts concentrated or otherwise, and

white still wines from the delimited wine-growing zone.

Decree No. 48-576 of 30 March 1948 (*J. O.*, No. 79, 1 April 1948, p. 3158) establishes the French-Saar customs union. By virtue of this Decree the Saar, from the customs standpoint, is assimilated into French territory. The entry and exit tariff, as well as the French customs laws and rules in force in the territory of continental France, are enforceable in the Saar. The economic or customs treaties, conventions, agreements or arrangements of any kind, concluded or to be concluded between France and other countries are fully applicable to the Saar. The French customs administration is commissioned with ensuring application.

Decree No. 48-719 of 16 April 1948 (*J. O.*, No. 101, 26 and 27 April 1948, p. 4077) defines the risks to be covered on behalf of the State by the French Insurance Company for foreign trade.

The French Insurance Company for foreign trade insures, on behalf of the State, against political, calamity, monetary or special commercial risks inherent in export and import operations and, in general, all operations concerning foreign trade, particularly those connected with performance of statute-labour, and also licences or patents. The Company, on behalf of the State, may also guarantee the French Bank of Foreign Trade against risks of insolvency on the part of the exporter or importer in connection with foreign trade operations financed by this Bank.

A Decree dated 16 April 1948 (*J. O.*, *ibid.*, p. 4078) specifies the risks which can be covered by the French Insurance Company for foreign trade on behalf of the State.

## POLAND

A Law of 29 January 1948 (*D. U. R. P.*, No. 10, 27 February 1948, text 70, p. 236) ratifies the Convention, concluded in Prague on 4 July 1947, for ensuring economic collaboration between Poland and Czechoslovakia. The Convention comprises a commercial treaty and agreements on the exchange of goods, payments, transport; collaboration in industry, agriculture, forestry and alimentation; scientific technical collaboration; collaboration in economic planning and statistics, etc.

## SWITZERLAND

On 17 March 1948 the Swiss Confederation and the Union of Soviet Socialist Republics concluded an agreement relative to the establishment of a commercial representation of the U. S. S. R. in Switzerland (*R. L. F.*, No. 12, 15 April 1948, p. 360). The preamble explains the setting up of this agency by the fact that 'according to the laws of the Union of Soviet Socialist Republics, the State holds the monopoly of foreign trade'. This agency which

will deal with trade operations between Switzerland and U. S. S. R., will be an integral part of the U. S. S. R. Legation and will enjoy the same rights and privileges, particularly in regard to inviolability of premises and the right to use cipher. It will not require to comply with the regulations of the Swiss trade register. However, disputes regarding trade agreements concluded or guaranteed in Switzerland by the agency fall within the jurisdiction of the Swiss courts. Conservatory measures, however, cannot be taken against the agency.

On the same date, an agreement on the exchange of goods was signed by the two countries (*Ibid.*, p. 363). Export and import permits will be delivered by the two countries after examination of the lists fixing the quotas of the different goods which may be exported or imported.

On 23 March 1948 was signed the fifth supplementary protocol to the trade agreement concluded in 1927 between Switzerland and the Czechoslovak Republic (*Ibid.*, p. 372) relative to changes in the customs tariff.

#### (d) Egg trade

##### FRANCE

An important Circular of the Minister of Agriculture, No. 154 of 9 March 1948 (*J. O.*, No. 7, 20 March 1948, p. 3814) notifies inspectors and agents for the repression of fraud, of the enforcement, after the long delays granted, of the provisions of Decree dated 15 June 1939 bearing civil administration rules for the execution of the Law of 1 August 1939 relative to the trade in eggs.

The war and post-war events prevented the application of the Decree of 15 June 1939; since, however, restrictions on the egg market have recently been removed, it has become indispensable to enforce the Decree in question, as its specific object is to check abuses in order to protect the consumer against possible fraud, and honest production and trade against the unfair competition of defrauders. This regulation of the trade in hen's eggs entered in force on 1 April 1948. It includes specific definitions of fresh eggs, preserved eggs and eggs unsuitable for consumption; specific instructions regarding the marking of preserved eggs and old eggs; rules for labelling, especially details regarding illicit and compulsory particulars. The aforesaid regulations are also applicable to imported eggs, irrespective of the application of the Decree of 4 August 1933.

#### (e) Excise duties

##### BELGIUM

Ministerial Decree of 11 March 1948 (*M. B.*, No. 72, 12 March 1948, p. 2003) modifies the excise duties and the special consumption tax on spirits and beers. A Ministerial Decree dated

9 March 1948 (*Ibid.*, p. 2013) concerns modifications in the preparation and prices of luxury beers.

##### ITALY

Legislative Decree No. 59 of 23 January 1948 (*G. U.*, No. 47, 25 February 1948, p. 643) modifies the procedure and respite for the checking and collecting of consolidated agricultural taxes.

A Legislative Decree No. 107 of 26 February 1948 (*G. I.*, No. 58, 8 March 1948, p. 810) modifies the dues on sugar and sugar products. The supplementary tax per quintal of sugar is reduced to 10,000 lire for grade 1 and to 9,600 lire for grade 2.

##### LUXEMBOURG

Ministerial Decree of 11 March 1948 (*M. L.*, No. 14, 12 March 1948, p. 263) increases the excise duties on spirits and spirituous liquors. This resolution was prompted by a similar decision taken by the Belgian Government, to which the Grand Duchy is bound by the Belgium-Luxembourg Convention of 23 May 1935 concerning the joint fund in the matter of excise duties, and by the necessity of taking the necessary measures for preventing speculation. Besides fixing the new rates of excise duty, the Decree provides for the inventory taking of stocks of alcoholic beverages.

A Ministerial Decree bearing a provisional increase in the excise duty on spirituous liquors from abroad, was published on the same date (*M. L.*, No. 15, 13 March 1948, p. 272).

##### NORWAY

A Royal Resolution dated 20 February 1948 (*M. L.*, No. 8, 27 February 1948, p. 159) prescribes the tax on the sale of milk. This tax has been fixed as follows: 0.25 öre per litre of cow's and goat's milk delivered to consumers during the period 1 March 1948 to 28 February 1949.

## V. STATISTICS

##### BELGIUM

Decree of 27 March 1948 (*M. B.*, No. 88, 28 March 1948, p. 2539) prescribes for 1 April an inventory of certain feedstuffs. Statements of the stocks held must be made by the members of the interport Union dealing with maize, barley, oats, coarse grains, bran and oilcakes of all kinds, including gluten-feed; starch-glucose, maize, oil processors and producers of oilcakes, including gluten-feed, in general; manufacturers of feedstuffs; and all storehouses of certain undertakings.

The Ministerial Decree of 20 April 1948 (*M. B.*, No. 120, 29 April 1948, p. 3504) concerns the agricultural and horticultural census anticipated for 15 May 1948. The minimum territorial unit is one 'are' (1,076.4 sq. ft.), and land possessed both in Belgium and in other countries, if in the frontier



zone, must be declared. The Agricultural Census Committee checks the information assembled. This Committee was set up in accordance with the Decree of 25 April 1942; its constitution, however, has since been modified by another Ministerial Decree of 20 April 1948 (*M. B.*, No. 121, 30 April 1948, p. 3555).

## FRANCE

A Decree of the Minister of Agriculture of 10 April 1948 (*J. O.*, No. 93, 17 April 1948, p. 3795) established that in the spring of 1948 an enquiry was to be held for the purpose of obtaining from farmers and the communal agricultural statistics committees set up by the Decree of 27 August 1902, the information required for the elaboration of government measures and for the working of administrative services. Every cereal grower is required to make a statement, between 1 and 10 May 1948, to the municipality of the commune where his farm or undertaking is located. These statements are registered by the communal agricultural statistics committee in the crop records under 'area under cereals', and countersigned by the informant. The communal committee will make out the communal agricultural statistical return on the distribution of the territory of the commune, on the distribution of arable land and on the livestock of the commune.

## VI. GAME

### CZECHOSLOVAKIA

Law of 18 December 1947 (*Sb. z. n.*, No. 106, 31 December 1947, text 225, p. 1667) regulates game hunting. The opening provisions deal with hunting rights, game categories, hunting lands. Following hunting management and operation, and some dispositions on hunting leases, the Law amply treats on game protection, the documents required by huntsmen (hunting permit, shooting-licence), types of hunting and restrictions on hunting, trade in and transport of game. The Law then deals with the damage caused by hunting and the animals, poaching, compulsory hunters' organization, and concludes with temporary and definitive provisions.

## VII. FISHERY

### NETHERLANDS

The Decree dated 26 February 1948 (*Stbl.*, No. 1-71, 25 March 1948) modifies and supplements different regulations relative to fishing (published in the *Stbl.*, 1932, No. 315).

The regulations in question, some of which were modified by Decree of 8 August 1946 (*Stbl.*, No. G-204) are: regulation on river-fishing; general regulation on fishing in inland waters; special fishing rules III and IV; and the special regulation regarding fishing in the closed Zuiderzee. Some of

the clauses in the new Decree aim at specifying the waters to which each of these regulations applies. Thus, for the first of the aforesaid regulations, regarding large rivers, the Decree enumerates the rivers in question with their fairways, loops, channels, etc. For the second regulation, the inland waters are defined by elimination or exclusion, specifying that they are apart from the watercourses of the first regulation, and of which the list is deferred. Regulations III and IV each apply to certain parts of the country chiefly in the east of the Netherlands (provinces of Friesland, Groningen, Drenthe, Overijssel, etc.) and in the islands. The other provisions introduced specify, for the different kinds of nets, the minimum mesh, and also the nets for which the size of the mesh is not prescribed. Lastly in some waters or parts of watercourses, the use of certain nets, either in general, or with a mesh number below that fixed, or during a specific period of the year, is prohibited.

## VIII. RURAL WELFARE

### Farm labour

### FRANCE

Law No. 48-401 of 10 March 1948 (*J. O.*, No. 62, 11 March 1948, p. 2475) regulates the working hours and weekly rest in agricultural occupations. The provisions of the law are applicable to wage-earners in agricultural and allied undertakings not covered by the Law of 21 June 1936 on the fixing of working hours in industry and trade.

The legal working hours of agricultural and similar workers, of both sexes and all ages, is limited to 2400 hours per year of 300 working days. These hours will be divided into periods, according to regional and crop requirements, following a certain average daily schedule. The agricultural or like worker will be entitled to one day's rest each week, to be taken on Sunday; in the case of personnel indispensable for attending to the livestock, however, the Sunday duties may be taken in turns. The operator who has worked on a Sunday or on a holiday will be entitled to compensatory rest or supplementary leave.

Overtime will only be permitted in the case of urgent work and payment will be increased 25 per cent., without prejudice to other advantages which may be granted according to agreements made between employers and workers or introduced in the joint labour regulations. On the other hand, where, owing to the customs of the district, or by virtue of agreements between the workers and the employers, the working hours are below the number laid down by the law the conditions in force will be maintained.

All provisions contrary to the Law stipulated by private contract, particularly by arrangement of joint committees, are null and void.

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